New fireboat *Deluge*, shown throwing 12,000 gallons per minute, makes Milwaukee's waterfront safer.

The American City is 40 years old this month

Best stimulant to civic pride is a resurfaced Main Street

Laying Texaco Asphalt binder course over old brick to be followed by a Texaco Asphaltic Concrete wearing surface.

The condition of a community's Main Street, which is in constant use by all its residents, has a strong bearing on civic pride. Bloomington, Ill., appreciated that fact when it resurfaced approximately a mile of old, worn paving on its Main Street this year with a smooth, resilient, joint-free Texaco Asphaltic Concrete wearing surface.

Bloomington had constructed brick, cement concrete and asphalt paving on Main Street in the past. In carrying out its resurfacing project, a two-course Texaco Asphaltic Concrete surface has been laid over the brick and concrete. A single course was considered adequate over the old asphalt pavement.

Bloomington, Ill., is another of the 1,500 representative U. S. cities in which streets have been paved with Texaco Asphalt. It takes clear-cut proof of durability and low upkeep cost to win such wide acceptance by city officials.

Write for copies of two helpful booklets, which describe all types of asphalt construction suitable for city streets.

THE TEXAS COMPANY, Asphalt Sales Dept., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Philadelphia 2 Richmond 19

TEXACO

REG. T.M.

TEXACO ASPHALT

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HAROLD S. BUTTENHEIM, Editor
ALDEN W. WELCH, Secretary, Research Editor
WILLIAM S. FOSTER, Engineering Editor
CAROL W. HIGHTOWER, Production Editor
CARL ERIC CARLSON, Associate Editor

EDGAR J. BUTTENHEIM, President
GEORGE S. CONOVER, Vice-President
EDWIN WAGNER, Treasurer
DONALD V. BUTTENHEIM, General Manager
MYRON MACLEOD, Advertising Manager
EDWARD GEORGE ALLEN, Jr., Promotion Mgr.
EDGAR M. BUTTENHEIM, Asst. Advertising Mgr.

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BRANCH OFFICES
Daily News Building, Chicago 6

2238 Ben Lomond Drive, Los Angeles 27
Albert T. Miller, *Pacific Coast Manager*

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THE MUNICIPAL INDEX and ATLAS, used in connection with the current advertisements in THE AMERICAN CITY, places officials in the most favorable position to obtain all types of available equipment and supplies from manufacturers who desire to serve municipal government departments. This 867-page annual is published by The American City Magazine Corporation, 470 Fourth Ave., New York 16, N. Y.

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800,000 people own the Bell Telephone Business

One out of every 60 families in the United States shares in the ownership of the Bell System

There are 300,000 stockholders of the American Telephone and Telegraph Company. Their savings have helped provide the telephone system that serves you.

Most of them are small stockholders. 230,000 own five shares or less. The average holding is thirty shares. More than one-third have owned their shares for fifteen years or longer.

No one—no individual, company or institution—owns as much as one-third of one per cent of A. T. & T. stock.

The people who own the Bell System come from all walks of life throughout the cities, towns and countryside of America. One in every 60 families in the United States shares directly in this ownership.

Every time you use the telephone, the accumulated, small investments of these hundreds of thousands of people go to work for you.

They have built the best and most widespread system of communication in the world for you to use at low cost. It is from their savings, and the savings of many like them, that the money needed to improve and expand the service comes.

A fair and regular return on the money these stockholders have invested is an important factor in making possible the good telephone service you get today.

BELL TELEPHONE SYSTEM

Our Municipal Notebook

"Forty Years of It"

WHEN THE AMERICAN CITY was born, four decades ago, an outstanding champion of the movement for finer cities was Brand Whitlock, then Mayor of Toledo, Ohio, and later Ambassador to Belgium. In 1914 Mayor Whitlock's autobiography was published under the title, *Forty Years of It*. As THE AMERICAN CITY completes *its* first "forty years of it," the following paragraph from this book seems especially worth quoting:

"The great problem is to make the government of a city human. . . . What people want is a life that is fuller, more beautiful, more splendid, and above all, more human. And nobody can prepare it and hand it over to them. They must get it themselves. It must come up through them and out of them through long and toilsome processes of development; for such is democracy."

Entering now on its fifth decade of publication, and encouraged by such letters as are published on pages 99-102 of this issue, THE AMERICAN CITY pledges its continued efforts to provide from month to month a rational balance between the practicable and the ideal in forward-looking ideas and helpful information for municipal officials. If democracy can continue to function with growing vision and efficiency in the cities, towns, and villages of America—and if municipal progress can be guided more and more by the combined wisdom and energy of able administrators and competent engineers and community leaders — democracy's future and the attainment of a peaceful and prosperous world will become increasingly assured.

Filing Articles from "The American City" For Future Reference

IN INCREASING its subscription order for THE AMERICAN CITY to 32 copies each month, as reported on page 102 of this issue, the City of Dayton, Ohio, is making sure that the officials in every department of its municipal government will have prompt access to the magazine each month. Copies will also be available both for binding and for clipping and filing.

In cities of smaller size that may subscribe for only three to five copies of THE AMERICAN CITY, the problem sometimes arises as to how the articles on various subjects can best be filed for future reference. For this reason we repeat here a suggestion previously offered in reply to such an inquiry.

During the month of publication, the copies subscribed for might well remain uncut and be passed around among the various officials and department heads. When the next issue arrives, three copies of the preceding issue might be assembled by the chief filing clerk. One of these should be set aside uncut for binding with the annual index to subjects and places at the end of the year, and meanwhile for consultation by means of the monthly indexes.

From two other copies, the staples could be removed and the pages interspersed so that a complete set of all articles, items, and advertisements could be assembled for the various departments for their subject files.

As This Magazine Saw Its Field 40 Years Ago

(The leading editorial in Vol. I, No. 1 of The American City—issue of September 1909)

The Coming of Age of Our Cities

AMERICAN cities are awakening to self-consciousness and to a sense of their larger responsibilities. Hitherto they have been distinguished equally for the marvelous rapidity of their growth, for the untiring energy and vigor of their builders, and for the wanton lavishness with which they have expanded, often squandered, their resources. They have shown on a grand scale the vices and virtues of youth—ignorance and irresponsibility, courage and superb faith in their destinies. They have mistaken gaudiness for beauty, bigness for greatness. They have lavished millions on luxuries, but grudged the dollars for decency.

And now these big children of Uncle Sam are beginning to realize something of the seriousness of life. They have borrowed nearly or quite to their debt limits, and it is being borne in upon them that economy is a virtue that is worth cultivating. They are learning that there is a direct relation between crime and crowding, and that it is cheaper to help men to live decently in freedom than to force them to live idly in jail. They have found that congestion breeds consumption, and that parks are better investments than potter's fields. It has been shown that if we give boys and girls no place for whole-hearted play we need not be surprised when some of them grow up into hoodlums and prostitutes. It has dawned upon us that dirt and smoke and noise are no more necessary or decent in a city than in our homes; that beauty is not necessarily more costly than ugliness; and that it pays to look a bit ahead of present needs. The American city is outgrowing its irresponsible childishness and is coming of age.

The Magic Wand—or, Paying the Price in Persistent Effort

Outside of fairy stories wishing is only indirectly related to accomplishment. Yet many of those who have seen the vision of what the American city might be—a beautiful, clean, healthy, wholesome city for children and women and men to live and work and play in—are waiting for some fairy godmother to touch our cities with her magic wand, and transform them into the ideal of our desires. There are others who arouse themselves to momentary activity, and then sink back into indifference or criticism of the men who are trying to do *something*, which may be the best they know if not the best possible. Not by such as these will the city of our hopes be built but by the men and women who have learned that we get only what we earn, and that if we are to have better civic conditions we must earn them by unremitting work.

The rapid increase in the numbers of this last class is a source of general encouragement. It is due to the growth both of intelligent dissatisfaction with existing conditions and of the conviction that the remedying of these conditions is quite within the powers of even small groups of determined citizens. The fact that almost every civic defect has been successfully dealt with in one city or another shows conclusively that we can have good civic conditions if we are willing to pay the price in persistent effort.

BOSTON

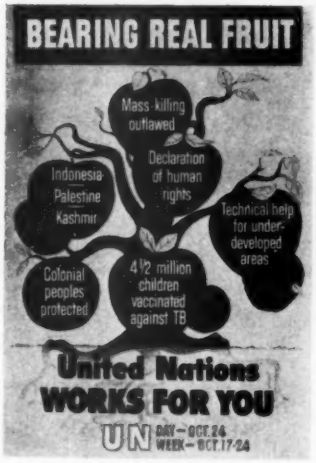
Shown above is one of seven 85′ Pirsch Hydro-Mechanical Tractor-Trailer Aerial Ladder Trucks ordered by the City of Boston.

Among the famous colonial buildings under the protection of the Boston Fire Department is historic Faneuil Hall, originally built (1740-1742) by Peter Faneuil, a Boston merchant. It was nearly destroyed by fire in 1761; rebuilt in 1763, and enlarged in 1805. In it were held many meetings of the Revolutionary Patriots, whence the name "Cradle of American Liberty."

PETER PIRSCH & SONS CO. KENOSHA, WIS.

"BUILDERS OF AMERICA'S FIRST ALL-POWERED AERIAL LADDER TRUCK
AND AMERICA'S FIRST TILT CAB AERIAL LADDER"

Getting Ready for "United Nations Week"



Basic United Nations Week poster, designed by J. Walter Thompson Co., for nationwide observance. UN Day is celebrated in all member nations.

WITH Thomas J. Watson, Jr., Vice-President, International Business Machine Corporation, as National Chairman, plans are under way for a 35-day "United Nations Week," to run from September 18 to October 24, which will be "United Nations Day."

The observance begins with a welcome week in New York City to the delegates of 59 countries arriving for the fourth regular session of the UN General Assembly. Following a study campaign of three weeks, the nation-wide full-dress United Nations Week comes October 17 through 24.

Cities and towns throughout the country are asked to ready themselves for town meetings, folk festivals, and radio-listening about the UN and its activities. Sponsored again by the American Association for the United Nations, the National Broadcasting Company, and the National Education Association, UN Week will have the cooperation of over 60 national organizations.

Special literature and posters will be available from AAUN at 45 East 65th St., New York. NBC will devote many hours of broadcasting of UN programs, and the NEA is sending kits to thousands of teachers. For literature and suggestions on UN Day, get in touch with the National Citizens Committee for UN Day, 700 Jackson Place, Washington, D. C.

Mayors and other local officials are urged to cooperate in getting their towns in tune for the theme of UN Week 1949—"The United Nations Works for You." The UN works for individuals—whose support it needs—not only in New York City or Provincetown or Brownsville, but in Haiti and Egypt and all over the 59 countries it encompasses. One of the aims of the 35-day "week" is to show this, as the record is checked and brings out the story of how the UN *does* work for you.

Letters Help Cities Overseas

A NEW way for Americans to help cities overseas in the rebuilding of their war-torn areas and restoration of professional ties between municipal administrators and others is offered in the "Letters Abroad" project of the World Affairs Council of Philadelphia.

For example, a German sanitary engineer recently wrote the Council wanting to exchange information with a qualified American about garbage removal and methods of disposing garbage in new houses. The Council promptly gave the German sanitary engineer an American correspondent interested in this phase of public health.

The Council receives thousands of letters from foreigners asking for names of Americans with whom they may correspond. Through them and the letters Americans write in answer, the Council hopes to establish a growing world understanding among peoples of all nationalities. Among those wanting to make friends with Americans are policemen, firemen, and other officials and employees of almost every country. The Council tries to match policemen with policemen, firemen with firemen, and nurses with nurses.

If you write the World Affairs Council, 1411 Walnut Street, Philadelphia 2, Pa., for a correspondent, tell something about yourself so they may more easily match you with a person of similar age, occupation, and interests. Also note whether or not you read and write a foreign language.

Enclosing a three-cent stamp will also help the Council speed the foreign letter to you. Once you receive this letter you need not contact the Council again. Continuing the correspondence will be up to you and your new pen friend.

Inter-American Municipal Congress in May 1950

MUNICIPAL officials from North, South, and Central America will meet in New Orleans in May 1950 for the third plenary meeting of the Inter-American Congress of Municipalities. The executive committee of the Congress recently announced that it had accepted the invitation of deLesseps S. Morrison, Mayor of New Orleans, and president of the American Municipal Association, to hold its first post-war meeting in the gulf-port city.

Major topics of discussion at the session, as outlined by the committee, include relations between municipalities and higher government levels, especially with regard to finance; the role of municipalities in public housing; city planning; and suggested solutions for city traffic problems.

This will be the first Inter-American Congress of Municipalities to meet in the

The American City Quiz

Match Wits with the Experts

QUESTIONS

1. ***What portion of the smoke nuisance can be prevented by better operation of existing equipment?***
2. ***When copper sulfate is used to clear sewers clogged with roots, does the copper sulphate "eat" the roots, which then disappear in several days?***
3. ***What convenient method is there to remove abandoned street-car rails from the street?***
4. ***Can tar be used for soil stabilization in a road or street-base course?***
5. ***What can one do to control ragweed and poison ivy effectively without any undue expense?***
6. ***What part does fluorine play in water supply?***
7. ***Can a city water department control the temperature of water drawn from wells?***
8. ***What methods can be used to prevent reservoir uplift when empty, when the reservoir is installed in an area with a high water table?***
9. ***Can a sewage-treatment plant be located near a residential area?***
10. ***When collecting leaves by the mechanical blowers, how densely can the leaves be packed?***

(Answers on page 9)

the key to the popularity of MI·CO meters

. . . and the handle of the MI-CO Parking Meter is also the key to additional revenue for the city. With MI-COs there is no chance of the city donating parking space. The motorist pays to park *every time*, whereas with some types of meters he often parks free because the city has not kept the meter springs wound up.

There's no point in having meters that do not carry out the function for which they were intended. And every run down meter represents a loss to the city. And every meter that's down because of mechanical failure is an even greater loss because you have the added expense of repairs.

Here's where MI-CO Meters have proved their desirability and popularity in hundreds of installations. They earn more because they are seldom out of order. And there's no free parking since the motorist must wind the spring . . . a one-third turn of the handle does the trick.

Exceptionally sturdy construction and fewer moving parts are responsible for the dependable performance, the high productivity, and the low maintenance of MI-CO Meters. We'll be glad to submit performance and earning records of MI-CO installations everywhere, many of them five years and older. Write for all the facts.

MI-CO METERS, 231 Court St., COVINGTON, KY.

Division of The Michaels Art Bronze Co., Inc.

United States since it was organized. The Congress originally was provided for by the Sixth International Conference of American States held at Havana in 1928 and was organized there in 1938. The group last met in Santiago de Chile in 1941.

Executive Committee

President of the Congress is Dr. Antonio Beruff Mendieta, former Mayor of Havana. Other members of the executive committee include Louis Brownlow, Washington, D. C., director general of the Congress; Ricardo Gonzales Cortes, Santiago de Chile, and South American representative on the committee; Herbert Emmerich, Chicago, North American representative; Nicolas Castellanos Rivero, Mayor of Havana, and Dr. Carlos M. Moran of Havana, secretary of the Congress.

Fire Prevention Week

FIRE Prevention Week is a time when every community in the United States can dramatize the need for fire protection and fire prevention. The Week should be used as the starting point for year-round fire prevention by public officials, in the schools, in the factories and stores, by the Fire Prevention Committee of the Chamber of Commerce, and by civic organizations.

President Woodrow Wilson issued the first National Fire Prevention Day proclamation in 1920, but it was not until 1922 that the whole week containing Fire Prevention Day was officially proclaimed "Fire Prevention Week" by President Harding.

Posters and materials for use in connection with Fire Prevention Week may be obtained from the National Fire Protection Association, 60 Batterymarch Street, Boston 10, Mass.

Housing Agency, Public Health Service Collaborate On Housing Hygiene

AN AGREEMENT for inter-agency collaboration on matters affecting the hygiene of housing has been signed by Housing Administrator Raymond M. Foley and Surgeon General Leonard A. Scheele, of the Public Health Service, acting for FSA Administrator Ewing.

Intended to avoid unnecessary overlapping and duplication of functions, the agreement provides that the Housing Administrator and the Surgeon General will cooperate in seeking the collaboration of other federal agencies, state and local governments, of public and private institutions, and representatives of various professional, industrial, labor, and civic organizations. Mr. Foley explained that the contract is in conformity with provisions of the Housing Act of 1949 which directs the HHFA to utilize available facilities of other departments and agencies of the government in its research and studies to overcome existing gaps and deficiencies in housing data and techniques.

Permanent liaison is established between the two federal agencies, calling for continuous interchange of information, cooperative planning of projects, allocations of working funds, assignment of technical personnel, and joint evaluation of cooperative projects, including consultations, as appropriate, with the Bureau of the Budget.

Under earlier agreements, the Public Health Service had furnished technical health services in public war-housing programs and provided consultant services in the development of the Veterans' Emergency Housing Program. Currently the Public Health Services, in collaboration with the housing agency, is conducting research on the development of individual household sewage-disposal systems.

The American City Quiz

ANSWERS

1. The Coal Producers' Committee for Smoke Abatement reports that 60% of the smoke emitted from industry is caused by careless operation. The operators of the boilers have the facilities to control this smoke, but do not use them.

2. No. The chemical may kill roots but it takes considerable time for natural processes of decomposition to disintegrate the roots after they have been killed by the copper-sulfate treatment.

3. One method that has proved successful in recent work at Reading, Pa., used hydraulic jacking equipment manufactured by the Rodgers Hydraulic Corp. The machine takes out two rails at a time and averages 1,400 feet of rails per hour. In concrete pavement the speed is slower.

4. Walter C. Ricketts, Office of Chief of Engineers, Washington, D. C., reports that it can be used successfully when combined with soil groups between A-1 and A-4 inclusive, and it can be used in A-5 soils having low capillary and plasticity values to a limited extent.

5. Rye, N. Y., and Indianapolis, Ind., have been able to control these nuisances by the use of the new weed-killer, 2-4D. At Rye, City Engineer Ray Murphy used the form of the weed killer manufactured by the C. B. Dolge Co., Westport, Conn., trained a crew especially for this work so that they would not damage other broad-leafed growths, and put on an effective control program for less than $2,000 per year.

6. When a person drinks water with fluorine found naturally in it in a concentration below 1.5 ppm, Dr. Frederick McKay of Colorado Springs, Colo., reports that he will have only six teeth requiring dental work and one tooth missing by the time he is 40 years old. In a non-fluorine area, he reports the average person as having a total of 21 teeth requiring work and eventually 12 teeth will be missing.

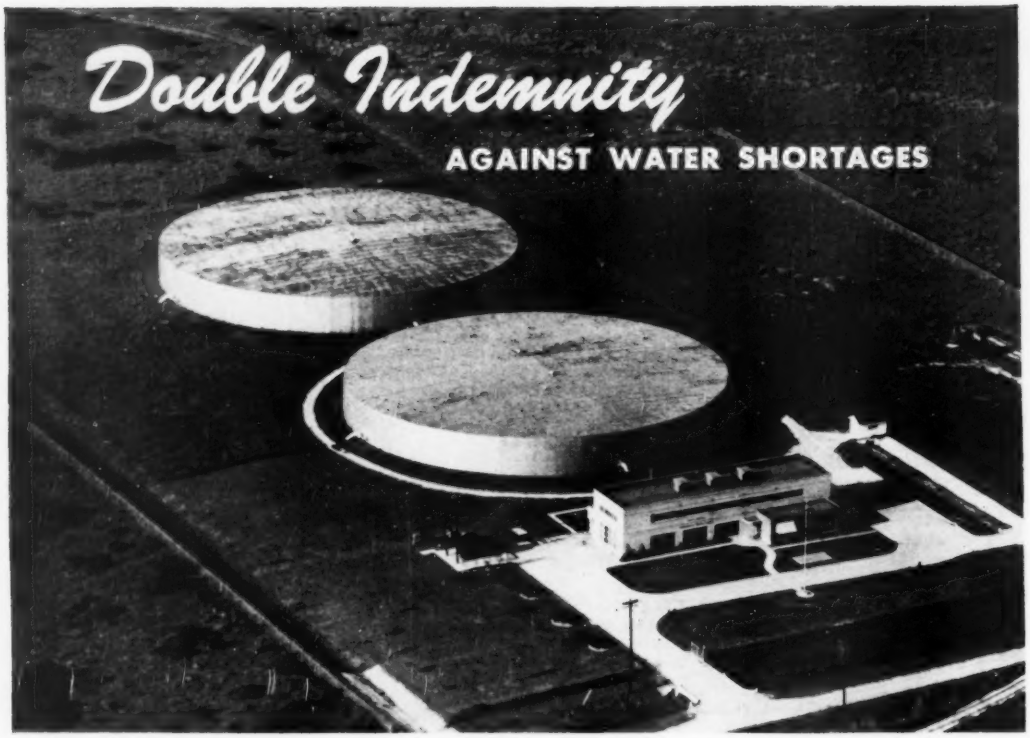
7. Generally the answer is no. The temperature of well water remains relatively constant. However, at Rocky Hill, Conn., there is a Ranney Collector with two sets of lateral pipes installed at different elevations. One is near the surface and supplies a relatively warm water; the other, deeper, obtains water that is cooler. The unit is used by the Hartford Rayon Co.

8. Anchor piles or other compensating weights are often used. However, Detroit, Mich., prevents reservoir uplift in its new reservoir by installing 206 pressure-relief valves. These act when the differential pressure is less than 4 feet. The valves cost in place $10,000 and replaced anchor piles that would have run to more than $300,000. L. V. Garrity supervised the installation.

9. While it's generally hard to locate a sewage-treatment plant in a residential area because of local prejudice, many nice residential areas have been built up around sewage-treatment plants. At Rockville Centre, N. Y., there is an activated-sludge plant that has many fine homes immediately adjacent to it. San Francisco has a sewage-treatment plant located in the midst of a city park. Many people in San Francisco do not even know that it is there.

10. In a trial run, the New York City Department of Sanitation discovered that they could pack leaves to 500 pounds per cubic yard in a 24-yard body. The blower used was made by the American Structural Steel Tank Co., Detroit, Mich.

Send in your suggested questions with the answers on municipal topics for use in this feature. The AMERICAN CITY will make a small payment for each question accepted.



HOUSTON stores ten million gallons of water in two welded steel reservoirs

The two steel reservoirs shown in the above aerial view provide Houston, Texas, with "double indemnity" against water shortages. They are 206 ft. in diam., 20 ft., 6 in. high, and have a capacity of 5,000,000 gals. each.

Like many other municipalities, Houston uses welded steel tanks for storing large volumes of water because they are economical to construct and easy to maintain. Regular painting keeps the steel in good condition. The welded joints are made water tight and stay that way.

Ground-level reservoirs like those shown above are just one of the many types of tanks we build for municipal and industrial water supply systems. For estimating figures on tanks and other steel plate structures, write our nearest office outlining your requirements.

Advantages of

HORTON

Welded Steel Reservoirs

- Superior construction because steel will not crack and develop leaks if there should be uneven settlement.
- Welded joints are made tight and stay water tight.
- Low maintenance costs since regular painting will usually keep the steel in good condition.
- Economy of all-welded steel construction is reflected in original cost.

CHICAGO BRIDGE & IRON COMPANY

Atlanta 3.....2114 Healey Bldg.
Birmingham 1.....1502 North Fiftieth Street
Boston 10.....1002—201 Devonshire St.
Chicago 4.....2127 McCormick Bldg.
Cleveland 15.....2236 Guildhall Bldg.
Detroit 26.....1501 Lafayette Bldg.
Havana.....402 Abreu Bldg.
Houston 2.....2101 National Standard Bldg.
Los Angeles 14.....1503 General Petroleum Bldg.
New York 6.....3308—165 Broadway Bldg.
Philadelphia 3.....1616—1700 Walnut Street Bldg.
Salt Lake City 1.....1501 First Security Bank Bldg.
San Francisco 11.....1233—22 Battery Street Bldg.
Seattle 1.....1301 Henry Bldg.
Tulsa 3.....1625 Hunt Bldg.

Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PENNSYLVANIA

Water Supply and Treatment

St. Louis Water Works Free of Debt

THIS year the St. Louis, Mo., Water Division of the Public Utilities Department finds itself completely free of debt for the first time since 1835. In fact, it is not only debt free but it has a cash reserve of $10,500,000 on hand and it has in its files permission voted by the people to issue $7,500,000 in bonds to finance new improvements if it wishes. According to Water Commissioner Thomas Skinker, the Division does not plan to issue these bonds but will pay for new improvements out of the cash reserve.

The Division plans a $19,000,000 improvement program to increase the capacity of the St. Louis water facilities. Among the improvements will be a consolidation of pumping facilities that is expected to lower operating costs $750,000 per year. From these operating savings, Commissioner Skinker plans to reduce the water rates now in effect.

On the back of each water bill is the information shown in the adjoining columns. It shows that while other costs have gone up for the customer, St. Louis is keeping the cost of water low.

A FLAT RATE CHARGE for water service may discriminate against you. You may be paying for more water than you are using. A meter rate does not discriminate. You pay only for the water consumed on the premises.

The cost of water to the consumers in St. Louis has not increased since 1918, but cost of coal, chemicals, and salaries and wages has increased as follows:

1938		1948
918	Number of Employees	740
$1,403,344.19	Salaries and Wages	$1,971,848.18
1,528.69	Average Annual Wage	2,664.65
127.39	Average Monthly Wage	222.05
19.57	Aluminum Sulfate Per Ton	22.65
7.63	Lime Per Ton	8.78
16.91	Ferrous Sulfate Per Ton	22.44
48.80	Chlorine Per Ton	68.25
30.80	Ammonium Sulfate Per Ton	41.22
2.46	Coal Per Ton	6.18

USE ALL THE WATER YOU WANT, BUT PAY ONLY FOR WHAT YOU USE! BY METERED SERVICE YOU PAY ONLY FOR WATER USED!

This table appears on the back of St. Louis water bills.

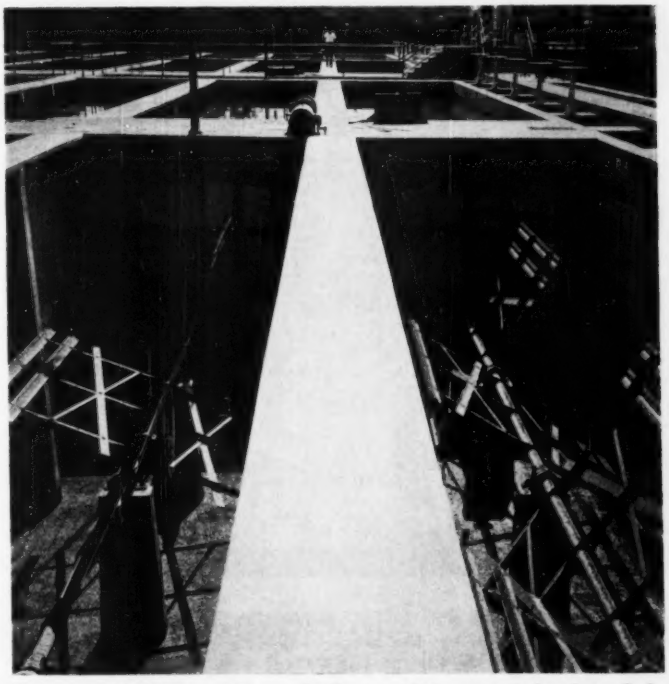
Morris New President of APPA

SAMUEL B. MORRIS, General Manager of the Los Angeles Department of Water and Power, is the new president of the American Public Power Association. He was elected to that position at its annual meeting, held last May. He succeeds Major H. Allen, head of the Memphis, Tenn., municipal utility. This is the second important technical association that has selected Mr. Morris to be president. He also is a past president of the American Water Works Association.

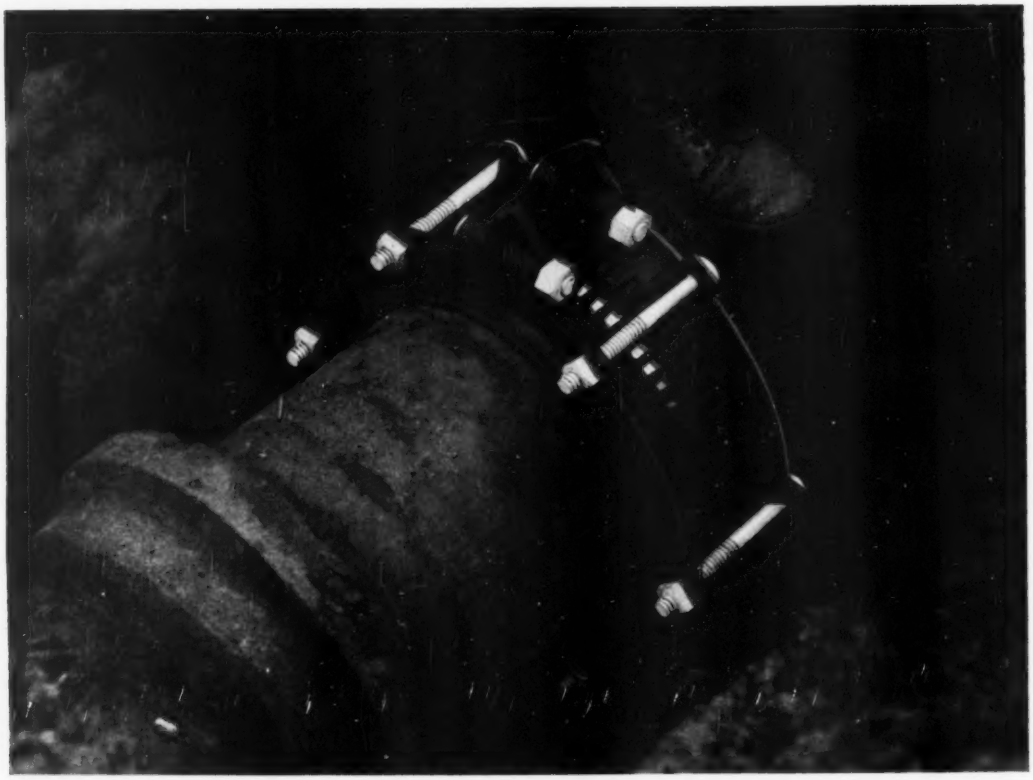
Chosen to serve with Mr. Morris were: vice-president, S. R. Finley, Chattanooga, Tenn.; executive vice-president, Ralph J. Duvall, Kansas City, Kansas; treasurer, C. E. Pray, Kansas City, Kansas; general counsel, Northcutt Ely, Washington, D. C.; general manager, Carlton L. Nau, also of Washington.

The new Board of Directors includes: Major Allen, Mr. Morris, Mr. Duvall, Mr. Finley; Emil Crown, Cleveland, Ohio; Clarence Hoper, Colorado Springs, Colo.; John Hunter, Springfield, Ill.; C. P. Ketler, Rockville Centre, N. Y.; Gerald Gentleman, North Platte, Nebr.; Francis King, Holyoke, Mass.; K. A. Wolterdorf, Huntsville, Ala.; Lewis K. Ambrose, Ellensburg, Wash.; J. W. Anderson, Muscatine, Iowa; Paul Hand, Newport, Ore.; and E. C. Rice, Springfield, Mo.

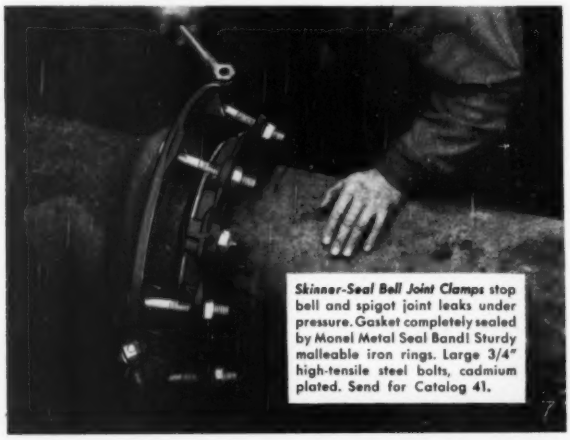
No Color, No Turbidity in Savannah's Water



Before the inhabitants of Savannah, Ga., use their water, it has been flash-mixed, coagulated, settled, and filtered for color and turbidity removal. Here is a close-up of one section of the four Dorreo Flocculators installed ahead of plain sedimentation basins at the new 40-mgd water-treatment plant.



One man repairs broken main!



Skinner-Seal Bell Joint Clamps stop bell and spigot joint leaks under pressure. Gasket completely sealed by Monel Metal Seal Band! Sturdy malleable iron rings. Large 3/4" high-tensile steel bolts, cadmium plated. Send for Catalog 41.

5 TO 15 MINUTES

SKINNER-SEAL SPLIT COUPLING CLAMP makes dependable, lasting repair. One man can install in 5 to 15 minutes! Clamps built to outlast main. Gasket is completely SEALED and protected; at break by Brass Band, at top where compression rings intermesh by Monel Metal Seal Band, at sides by hard vulcanized Gasket Tips.

Insures against recurrence of trouble by introducing a degree of flexibility in the line. Each clamp tests to 800 pounds line pressure. Be prepared — order today. M. B. SKINNER CO., SOUTH BEND 21, IND.

SKINNER-SEAL **SPLIT COUPLING CLAMP**

Sewerage and Sewage Treatment

How Kitchen Grinders Are Going

HALF the consumers who purchased Disposalls during the last twelve months did so as a result of a kitchen-remodeling program, according to a survey made by Hotpoint, Inc. More than half of the consumers had not seen a disposal unit in operation in a home before making their purchase. The facts, says Edward R. Taylor, sales manager, tab this appliance as having cleared the first hurdle of public acceptance among home owners in the $10,000-and-up classes.

The need for industry-wide progress in arriving at reasonably priced and standardized installations was shown by the fact that 47% of the dealers who sold Disposalls did not make arrangements to have the appliance installed. The type of dealer making the sale was primarily an electric-appliance outlet (73%), while plumbing and heating dealers were next with 12% of the sales. The latter figure is significant because this group represents only 4% of the company's 10,000 retail outlets. It is expected that annual sales will reach one million units when the industry "unites to bring about a practical working relationship between appliance dealers and plumbers, and to educate more plumbers to the profit opportunities in merchandising appliances."

Most sales were made to consumers in metropolitan areas, 50% in cities of 50,000 or more persons. Consumers living in towns with a population of 10,000 to 50,000 represented 20%, and 16% were in places of 2,500 to 10,000. Only 1% went to farmers. The State of New York had the largest concentration of buyers, representing 24% of the total sales.

Technical studies in conjunction with sanitary engineers, universities, and municipalities are proving helpful. The Uniform Plumbing Code Committee, representing authorities in the plumbing industry and in government, already has stated that disposal units can be used with septic tanks, provided the capacity of the tank is increased by 30%.

Because relatively few disposers are in use in the nation's homes, dealers are using dramatic demonstrations and displays in their stores. New home demonstrators also give dealers the opportunity to take the disposer into the consumer's home for an actual kitchen demonstration.

The appeal of the kitchen disposer resides in low initial cost, low cost of operation, negligible maintenance expense, and time and labor savings. Last but not least is the essential sanitation of the method.

Portable Laboratory Hunts Out Pollution

ACCEPTING its responsibilities under the recently established eight-state Ohio River Valley Water Sanitation Compact, the State of Ohio has placed in service an elaborate mobile laboratory for stream-pollution control. The laboratory is being used for on-the-spot-collection of data and evidence relating to pollution conditions throughout the state.

The traveling laboratory represents a design by members of the staff of the Ohio Health Department's Division of Sanitary Engineering, under the supervision of F. H. Waring, Chief Engineer, and M. L. Riehl, Chief Chemist. The 25-foot trailer is towed by an 8-cylinder Pontiac station wagon, which also serves as a field car for collection of samples and transportation of personnel. John J. Mohler and Associates of Peoria, Ill., constructed the trailer.

The value of mobile laboratories for pollution studies was demonstrated some years ago by the U. S. Public Health Service in its work on the Ohio River and more recently by the U. S. Corps of Engineers for making sanitary surveys at Army camps.

At present the laboratory has been assigned to work on the Miami River, one of the major streams in Ohio. Factual evidence will be sought for determining the sanitary condition of the river and the corrective measures required for sewage and industrial-waste treatment.

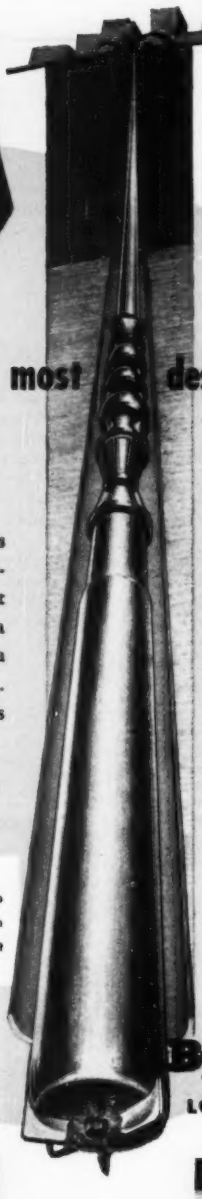
Ohio's mobile laboratory gives on-the-spot data for stream - pollution control.

Sewer Project in Queens

The Borough of Queens, N. Y., is constructing an $8,250,000 system of parallel storm and sanitary sewers. This photo shows two workers on the project making a joint, while others are positioning a section of 18-inch clay pipe.

with BJ submersible pumps

you choose the most desirable location



FOR CITY ENGINEERS, there's no need to choose an undesirable location for your next water well. You can install a Submersible in a park, in a courtyard, in a parking lot . . . wherever the Submersible is needed.

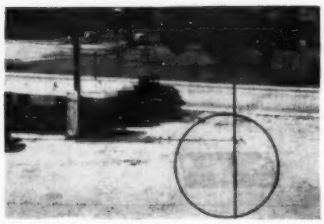
MOTOR SIZES . . . . 7½ to 350 hp
CAPACITIES . . . 50 to 10,000 gpm
HEADS . . . . . Up to 1500 feet

Why the motor at the bottom of the well?

The Byron Jackson Submersible design simplifies municipal and suburban water-pumping problems. This precision-assembled oil and mercury sealed motor-pump unit eliminates the installation and maintenance bugaboos of shaft-type DWT pumps. Offers you real values in trouble-free pump installation anywhere, and quiet operation for residential districts. Write today for further information or contact your local BJ representative.

Byron Jackson Co.
Since 1872
LOS ANGELES 54, CALIFORNIA
Offices in Principal Cities

GUARANTEES QUIET OPERATION for residential districts. Park installations such as this one often supply up to 3000 gpm at heads up to 400 feet. Yet nearby home owners hear none of the noise commonly associated with deep well pumps.



DRIVE OVER IT. Here, the most efficient well location was at an intersection. Few people even know the pump is there. Nearby stores and restaurants are not concerned over an unsightly pump house or bothered by motor noise.

Street Construction & Maintenance

New York Public-Works Men Ask Redistribution of Gas Tax

A REQUEST for redistribution of gas-tax funds so that cities would be allowed a share was the first important act of the newly formed Upstate New York Chapter of the American Public Works Association. The new chapter met recently at Syracuse University for a two-day Public Works Forum.

The action of the chapter followed a discussion of municipal finances by George H. Bedford, Commissioner of Finance, Syracuse, N. Y. Commissioner Bedford showed how fiscal policies of his city would lead to a debt-free condition by 1960, and that this lowering of indebtedness meant that the city would have more money available for physical improvements, and would not have to spend so much of its income for debt service and interest on indebtedness. During the discussion, it was pointed out that more than half of state gas-tax funds arise through traffic that travels on the streets of cities, towns, and villages, but little if any of these gas-tax funds are spent to maintain the streets that make this revenue possible. The new chapter thereupon appointed a committee to make recommendations at the fall meeting so that a formal resolution can be presented to the New York State Legislature regarding a more equitable redistribution of gas-tax funds.

The new chapter formed an executive committee to become the officers for the ensuing year. The men elected include Harold Dean, Superintendent of Public Works, Poughkeepsie; Ira Elmer, Commissioner of Public Works, Rome; Raymond H. Dodge, Commissioner of Public Works, Syracuse; and Hubert Walker, Commissioner of Public Works, Jamestown.

A wide range of public-works equipment was assembled for the meeting. In the foreground is a Walter Snow Fighter. Directly in back is a Bros snow blower, as well as refuse-collecting equipment, street sweeers, graders, etc.

Commissioners Ray Dodge, left, of Syracuse, and Ira Elmer, right, of Rome, N. Y., stop for a moment in their inspection of the equipment assmbled at the APWA meeting.

Eads Bridge Celebrates 75th Anniversary

THE engineeringly famous Eads Bridge that spans the Mississippi River in St. Louis, Mo., celebrates three quarters of a century of service this year. The design and construction of the bridge still remains as an engineering classic, and played an all-important part in unlocking railroad transportation to the West and Southwest in the last century.

The bridge is named in honor of its designer and builder, Captain James B. Eads, who faced what looked like insurmountable problems in order to make the bridge a reality. Although first travelers over the bridge were apprehensive about its safety, it has given a remarkable account of itself for service and durability. The 1896 cyclone, which is recorded as a catastrophe in St. Louis history, produced only superficial damage to the bridge. The 1927 tornado, also nearing catastrophic proportions, did no damage to it at all.

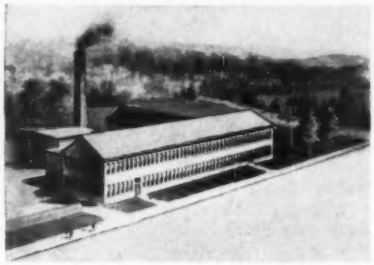
Most famous among the stories of the Eads Bridge is the decision of the designer to pack one of the steel spans in ice to reduce its length during a particularly hot period in order to close one of the arches.

The St. Louis Eads Bridge celebrates its diamond jubilee.

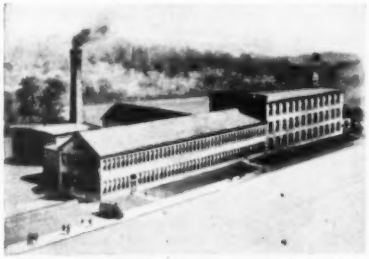
LET'S LOOK AT THE RECORD...

GROWTH OF THE INDUSTRY

THE FIRST FACTORY
NEWTON HIGHLANDS, MASS. 1866—1885



Larger quarters became necessary and Gamewell moved into this plant capable of accommodating about 100 workmen.
NEWTON UPPER FALLS, MASS. 1885—1904



The business continued to grow, and the plant was enlarged.
NEWTON UPPER FALLS, MASS. 1904—1913

For protecting its own interests and those of its customers against fire, the highly fire resistive building at the left was erected in 1913, and has since housed Gamewell's manufacturing operations.
NEWTON UPPER FALLS, MASS. 1913—1949

TRADE MARK
GAMEWELL
REG. U.S. PAT. OFF.

Manufacturer of

MUNICIPAL FIRE ALARM SYSTEMS

Founded in 1855 by John N. Gamewell who in that year acquired the basic patents covering the first successful application of Morse telegraph to Fire Signaling. The firm of John N. Gamewell & Company was organized in 1866, incorporated as The Gamewell Fire Alarm Telegraph Company in 1879, and the title changed in 1924 to — The Gamewell Company — which now presents the accumulated experience of 94 years in the development, manufacture and installation of a highly specialized product.

World-Wide Recognition

Gamewell systems are now employed in 90% of the cities in the U.S.A., Canada, and Africa having public fire alarm systems, by many cities and governmental establishments in 20 foreign countries and colonies.

Small Organization— High Quality Products

Despite the wide distribution of Gamewell systems, the company's volume of business has been small compared with many other industrials. Yet the high efficiency, reliability and great durability of its public fire alarm equipment produced by a small force of skilled workmen — never exceeding 300 persons — have caused intending buyers, almost invariably, to prefer the Gamewell System.

Expression of Appreciation

The Gamewell Company deeply appreciates the widespread confidence in its products and will continue to incorporate therein the features dictated by nearly 100 years' experience as being essential for the adequate protection of life and property.

We invite your inquiry.

THE GAMEWELL COMPANY

Newton Upper Falls 64, Massachusetts

Fire Loss Is Often Water Loss —Use Salvage Covers

By FRANK C. McAULIFFE
Chief
Fire Insurance Patrols
Chicago, Ill.

A LARGE proportion of the fire waste in this country is attributable to the operations of the fire departments at fires. In recent years a number of innovations have appeared —such as fog equipment and wetter water—mostly directed at the reduction in water damage. There must always be a great deal of such damage, for water and plenty of it is the best and final extinguisher. The best protection against these heavy streams or even of spray are salvage covers.

The values of this method have long been known and practiced by fire-insurance companies. Municipal fire departments are beginning to recognize these values but have yet to practice them with the dispatch and effectiveness desired.

The term "salvage covers" seems simple enough, yet there is quite some controversy over them. All agree that a salvage cover should shed water and also hold water when "bagged." The rubber-coated cover holds water but costs and weighs 25% more than the canvas treated type. When covers are purchased for use where they are not given strenuous and constant duty, the best grade of canvas covers will give better satisfaction. We in the Chicago Fire Patrol have used Suredry Green-Bak covers for many years. We have found them both water-tight and durable for the rugged work of salvage at and after fires and do not hesitate to recommend them.

The most-used size is the 12-by-18-foot, but we believe the most practical is the 14-by-18 foot. Men can carry from two to four, and one of the latter size will cover the contents of about any dwelling house room.

The first operation in cover work for the officer in charge is to locate the fire. Cover work should start immediately below the fire. If the amount of water to be used will not permit holding it in "bags" on the floor below, the officer must be prepared to cover all stock and furnishings to the basement. In such cases he must call for sufficient men and covers to keep his cover work well in advance of the water.

If it is decided that the water can be held on the floor below a fire, the floor is "bagged." The stock and furnishings in the exposed area are always covered first. Then the floors are covered and the edges of the covers are rolled to hold water. The covers over stock are arranged to drain into the bags. If the water threatens to run over the rolled edges, they are raised by means of chairs or boxes.

Industrial and commercial risks present many difficult problems in arranging stock, machinery, and furnishings in a manner suitable for coverage. Shelving built to the ceiling, using the sidewall of a room for backing, presents a most difficult salvage problem. Water following the wall damages the stock on the shelves unless special precautions are taken. In some cases it is possible to remove the stock from the upper shelf, spread cover lengthwise and roll the edge forcing it between the shelving and the back wall. In other cases, it is possible to produce considerable salvage by pulling the stock away from the back wall, allowing water to pass without damage to the floor. When it is necessary to pull down ceilings over show cases, it is well to afford additional protection by double covering. Reckless covering of fragile merchandise will often produce more damage than would be the case if it were allowed to remain uncovered.

While the small department cannot be expected to maintain a salvage company, there is no reason why all the companies should not be instructed in salvage work. What this work and knowledge entails is shown by a briefing of the standard drills. These consist of:

Covering goods on counters, tables, etc.; method of rolling edges to prevent water from running under covers when more than one cover is necessary to complete the work; importance of clean covers; how to cover delicate fabrics and materials easily soiled; prevention of water damage to bottom of dresses and racks or other materials close to the floor when sweeping water.

Covering shelves, large stocks in piles, belt-driven machinery, household furniture, and roofs.

Care of covers at fires and in quarters. Drill in patching and mending rubber and canvas. Instructions in washing, drying, and general care to prevent deterioration.

All cities and towns having fire departments, either volunteer or paid, can perform salvage work at fires and they should install equipment for that purpose. The installation of a few covers by fire departments and the practice of using them will bring to the attention of both officers and men much of the needless destruction wrought at fires. When firemen become salvage-minded its practice is assured.

Salvage covers can save thousands after a fire. With too many holes in the roof to cover, men save the salvaged stock on the floors from rain or snow.

MONEY-MAKER

ILLUSTRATED above is one of three T4 TRAXCAVATORS working on a new four-lane highway at San Pedro, California. These TRAXCAVATORS dug and loaded 21,000 yards of earth in six days . . . over 1,100 yards per TRAXCAVATOR per day!

This profit-making TRAXCAVATOR performance is being repeated on hundreds of jobs all over the country. TRAXCAVATORS are unequaled for digging and loading — for handling bulk materials — and for doing numerous other important construction and road-building tasks.

Get complete information about TRAXCAVATORS from your TRACKSON-Caterpillar dealer, or write direct to TRACKSON COMPANY, Dept. AC-99, Milwaukee 1, Wisconsin.

TRAXCAVATOR
REG. U. S. PAT. OFF.
The Original Tractor Excavator

Street Cleaning and Refuse Disposal

New Truck Completes Flusher Combination

IT WASN'T the cart before the horse, in Allentown, Pa. It was the flusher before the truck, and no one in particular could be blamed.

According to City Engineer Merle W. Meckley, Allentown obtained a 2,000-gallon flusher from the Standard Steel Works, of Kansas City, in 1942. It had a 500-gpm centrifugal pump with a Ford V8 industrial engine and an electric starter. It had four flushing nozzles and sprinkler attachment on the front of the unit. All controls of the pump and motor were to be mounted in the truck cab. It also had a fire-fighting attachment.

The city planned to mount this equipment on a new cab-over-engine truck chassis, but wartime rationing boards would not allot such a piece of equipment. Consequently the flusher had to be mounted on an old truck.

This was used until the spring of this year, when the city purchased a new Mack International cab-over-engine truck for the flusher. The new truck has a 162-inch wheelbase, a front-axle load of 9,000 pounds, and a rear axle load of 18,000 pounds when the flusher is full of water.

The Allentown flusher with its new Mack chassis.

The flusher cleans 25 miles of streets daily. It can handle 36 loads in an eight-hour day.

Poughkeepsie, N. Y., Uses Short-Wheelbase Trucks

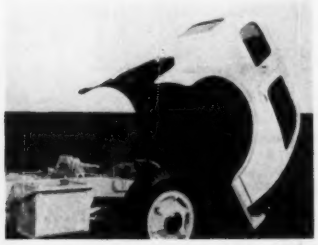
NINE of the new White short-wheelbase trucks are being used by Poughkeepsie, N. Y., in its refuse-collection system. The new trucks are more readily maneuvered in traffic, can be easily turned, backed, and parked in congested areas, provide access into narrow alleys. Front cab and wide windshield provide unusually complete visibility ahead and to the sides. Because of the load distribution made possible by a heavier front axle and the extreme forward position of the cab, heavier loads can be carried without sacrifice of the short-wheelbase advantages.

The cab, with curb-height step, is even lower than the cab of a conventional truck. The wide doors and roomy interior facilitate the work of the driver and helpers.

The truck has a power-tilt cab that can be tilted forward and completely out of the way for easy servicing of the engine and forward working-condition parts.

Poughkeepsie's Sanitation Department comes directly under the jurisdiction of Mayor Horace S. Graham.

Poughkeepsie's new short-wheelbase trucks maneuver easily in heavy traffic.

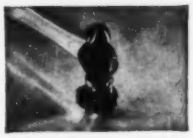


PHOTOS COURTESY WHITE MOTOR COMPANY

The power-tilt cabs of the refuse-collection trucks make servicing easy.

STOP LOOK LESSEN

maintenance costs



HIT IT! *Marfak* **won't splatter like ordinary grease — proof that heavy loads and rough roads won't hammer it out of spring shackles, tie rods and other chassis parts . . . that** *Marfak* **gives safer, longer-lasting protection with fewer applications.**

TEXACO MARFAK assures longer life for all chassis parts

Texaco Marfak is the longer-lasting chassis lubricant that *stays on the job.* Heavy loads and rough service won't squeeze or jar it out of bearings. *Texaco Marfak* seals against abrasive dirt, keeps rust-forming moisture off metal. Parts last longer, maintenance costs less.

In wheel bearings, use *Texaco Marfak Heavy Duty.* It provides fluid lubrication inside the bearing, but retains its original consistency at the edges . . . sealing itself in, sealing out dirt and moisture. Protects against rust, too. No seasonal change is required.

For crawler track mechanisms, use *Texaco Track Roll Lubricant.* It assures longer life for all parts, and lower maintenance costs.

Let a Texaco Lubrication Engineer explain the Texaco Simplified Lubrication Plan, and show you how it can reduce costs all around. Just call the nearest of the more than 2300 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, New York.

MORE THAN 300 MILLION POUNDS OF MARFAK HAVE BEEN SOLD!

TEXACO Lubricants and Fuels

FOR ALL CONTRACTORS' EQUIPMENT

Get This Literature – Free!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers, or circle the identifying numbers on this coupon and mail it to THE AMERICAN CITY MAGAZINE, 470 Fourth Ave., New York 16. We will see that catalogs are sent to you without expense or obligation.

9/49

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Name ..... **Position** .....

Address .....

Traffic Controller Adapted for Expansions

322 The Marbelite Co., Inc., 27 Warren St., New York 7, N. Y., will send you details of its Multi-Dial controllers designed to meet your needs today and designed for future expansion requirements through the simple installation of jack-connected dials. No unnecessary expense when your community grows.

New Line of Pumps

323 Marlow Pumps, Ridgewood, N. J., is presenting a new line of motor- and engine-driven diaphragm and walking-beam plunger pumps, and eccentric drive plunger sludge pumps. Write for information about these pumps which are effective even in pumping liquids that are so heavy as to be nearly solids.

10-Yard Garbage Unit Holds 20 Yds. Loose Garbage

324 The Pak-Mor, made by the Pak-Mor Co., 812 N. Flores St., San Antonio 1, Texas, is a garbage-collection unit with a packer plate that compresses about 20 yards of loose, unpacked garbage into a 10-yard mass.

Stop Steel Tank Rust

325 The Harco Corp., 2156 E. 4th St., Cleveland 15, Ohio, will send you a brochure that gives a complete picture of the cathodic principle of providing complete, lasting protection against destructive rust in water tanks. Ask for *Stop Steel Tank Rust*.

Diesel Power

326 The Enterprise Engine & Foundry Co., 18th and Florida Sts., San Francisco 10, Calif., will send you its Bulletin No. 203 describing and illustrating the company's complete line of stationary diesels and generator sets. Enterprise machines are 4-cycle, 6 and 8 cylinder, normally aspirated and turbocharged up to 1,800 hp per unit, and have completely automatic pressure lubrication and individual injection pumps.

Tennis Courts

327 Before building new tennis courts or resurfacing old, send for literature available from the Stancal Asphalt & Bitumuls Co., 200 Bush St., San Francisco 4, Calif.; players like Laykold and Grasstex all-weather courts because of the resilience and glareless black, red, or green colors, and engineers like its ease of construction and durability resulting from perfect drainage of its impervious surface.

Be Ready For the Fall Leaf Problem

328 When a Good Roads leaf collector is used, clogged sewers and slippery pavement are avoided. This machine has a flexible intake hose that maneuvers around and under autos, and a spacious litter carrier for the pulverized leaves—of value, incidentally, as a natural fertilizer, or compost. Write the Good Roads Machinery Corp., Minerva, Ohio.

Stops Leak in Pinelines

329 The emergency pipe clamp made by the M. B. Skinner Co., South Bend 21, Ind., eliminates the job of tearing out old and putting in new pipe while saving the attendant expenses. The Skinner-Seal emergency pipe clamp is easy to apply.

Filter Sand and Gravel

330 Produced from an inland pit, the filter sand and gravel provided by the Northern Gravel Co., P. O. Box 307, Muscatine, Iowa, is free from river contamination and foreign matter. Shipment is in bulk or bagged.

Fire-Fighting Equipment

331 Among the mechanisms described in the brochure available from the Boardman Co., Oklahoma City, Okla., are a 500-gpm triple combination, single-, two-, or three-stage pumper, a 750-gpm triple combination 2-stage pumper, rescue squad truck, tank truck, and flushers.

Hoist, Dump, and Lower Truck Body in 15 Seconds

332 The Brooks Load Lugger, manufactured by the Brooks Equipment & Mfg. Co., 1955 Davenport Rd., Knoxville, Tenn., speeds up work by eliminating lost time while crews wait for materials. The Lugger hoists, dumps, or lowers a fully loaded truck body in 15 seconds, and a load can be dumped directly into the Brooks body without re-handling.

Pre-Heater for Engines Assures Quick Starting

333 The Kim Hotstart, a patented pre-heater for gas or diesel engines, plugs into the electric circuit at the end of the run. Then the Hotstart draws cold water from the engine, heats it, forces it back into the engine to keep it warm while not in use. Ask for literature showing how to eliminate both heated terminals and cold starts: the Kim Hotstart Mfg. Co., West 917 Broadway, Spokane 11, Wash.

Highway Center Line Shines By Night

334 The Prismo Life-Line consists of a binder in which are embedded millions of crystal-clear spheres that reflect light through fog or rain. During the day, it looks like an ordinary center line. Write for bulletins to the Prismo Safety Corp., Huntingdon, Pa.

Light Weight, Easy Handling In Chain Saw

335 The McCulloch chain saws, which come in sizes from 20 to 60 inches, and the 20-inch bow saw, all feature fast starting, light weight, and the resultant easy handling. The saws operate in any position and cut through tough woods easily. Illustrated literature gives all the facts; write the McCulloch Motors Corp., 6101 West Century Blvd., Los Angeles 45, Calif.

Key Curb Stop

336 The A. Y. McDonald Mfg. Co., Dubuque, Iowa, manufacturers of brass goods and pumps, will send you data on its Diamond combined cap and tee handle inverted key curb stop that eliminates the possibility of sand and extraneous material from entering the plug. In sizes from ½ to 2 inches, it is also available in stop and waste pattern in all sizes.

No Upkeep or Costly Repairs With Copper Pipe

337 A streamline copper service pipe installation is practically vibration proof and impervious to settlement of filled earth, water mains, or buildings. And copper does not rust or scale. Write the Streamline Pipe and Fittings Div., Mueller Brass Co., Port Huron, Mich.

Immediate Delivery Of Diesel Generator Sets

338 A. G. Schoonmaker Co., Inc., 50 Church St., New York 7, N. Y. will send you bulletins on immediate-delivery diesel generator sets in unit capacities from 10 to 1,420 kva, a.c. 50 and 60 cycles, any voltage.

Automatic Railroad Signals Save Lives

339 The Model 10 automatic signals for rail and highway crossings not only speed up the flow of traffic but provide positive protection against accidents; not one accident has ever occurred as a result of operative failure. Write for Brochure 748-AC8, the Western Railroad Supply Co., Chicago 8, Ill.

(Please turn to page 22)

A Clean Sweep

WITH ATHEY FORCE-FEED LOADERS!

With Athey Force-Feed Loaders seventy progressive cities have solved the tough, costly problem of removing Fall leaves and Winter snows from streets and drives.

SNOW LOADING *with Athey Force-Feed Loaders*

In blade-windrowed snow, the Athey Force-Feed Loader, with its moldboards and cutting edges under hydraulically-controlled down pressure, can easily load up to 20 cu. yds. per minute! CLEAN SWEEP LOADING of "nuisance" materials is matched by cost-whacking performance in alley cleaning, salvaging macadam, spoil disposal, oil-mix loading, etc., the rest of the year!

LEAF LOADING, TOO!

On leaf-loading, this self-propelled unit operated by one man can outperform a hand loading crew of 30 men, with a great saving in dollars. Your Athey-"Caterpillar" dealer can deliver your Force-Feed Loader in time for Fall duty! See him now.

Athey APCOR Products

Athey Products Corporation, Chicago 38, Illinois

ATHEY PRODUCTS CORP.
5631 West 65th St., Chicago, Ill.

Please send full details on Athey Force-Feed Loaders and name of nearest Athey-"Caterpillar" Dealer.

Name _____

Title _____

Address _____

City _____ State _____

Athey FORCE-FEED LOADERS

Free Literature

Use the Coupon on Page 21

Turbidity Measurements Without Standards

340 With the Turbidimeter manufactured by Hellige, Inc., 3718 Northern Blvd., Long Island City 1, N. Y., neither standard suspensions nor comparative rods are required for the measurement of water turbidity and other suspended matter. This instrument works through the comparison of a beam of transmitted light with the scattered light produced by a lateral illumination of the specimen by the same light source.

Get Rid of Leaves— Wet or Dry

341 The Speedy Power-Vac Raklean rakes and vacuums into a hammer-mill wet or dry leaves; here they are pulverized and blown back on the turf to act as a rich fertilizer. If hauling should be necessary, a loader stack unit can be attached to the Raklean. Write for data to the Speedy Mfg. Co., Sioux Falls, S. D.

Traffic Zone Paint That Stays On

342 The Everseal Mfg. Co., Inc., 252 West 57th St., New York 19, N. Y., will send you data about its traffic zone paint. It comes ready-mixed and is easily applied by either a road marking machine or a brush. The paint is completely dry in about 20 minutes.

Brings Maps Up to Date

343 The Lithoprint Co. of New York, Inc., 145 Hudson St., New York, N. Y., will send you data on its process of bringing city and county maps up to date—even to the extent of street-name changes. For effective planning, obsolete map information is a waste of time and money.

Cleaning Equipment

344 The J. I. Holcomb Mfg. Co., Indianapolis 7, Ind., will send you its catalog No. 149, which includes a complete description of all types of cleaning materials—cleansers, disinfectants, dusters, floor mats, polishers, scrubbers, sprayers, sweepers, and other equipment.

Swimming-Pool Equipment

345 Suction pool cleaner, underwater lights, adjustable flow inlet fittings, self-priming portable pump, angle overflow drains, and the air-operated automatic gas SterElator are the pieces of equipment described in a piece of literature available from the Everson Mfg. Corp., 214 West Huron St., Chicago 10, Ill.

Wrought Iron For Sewage Treatment

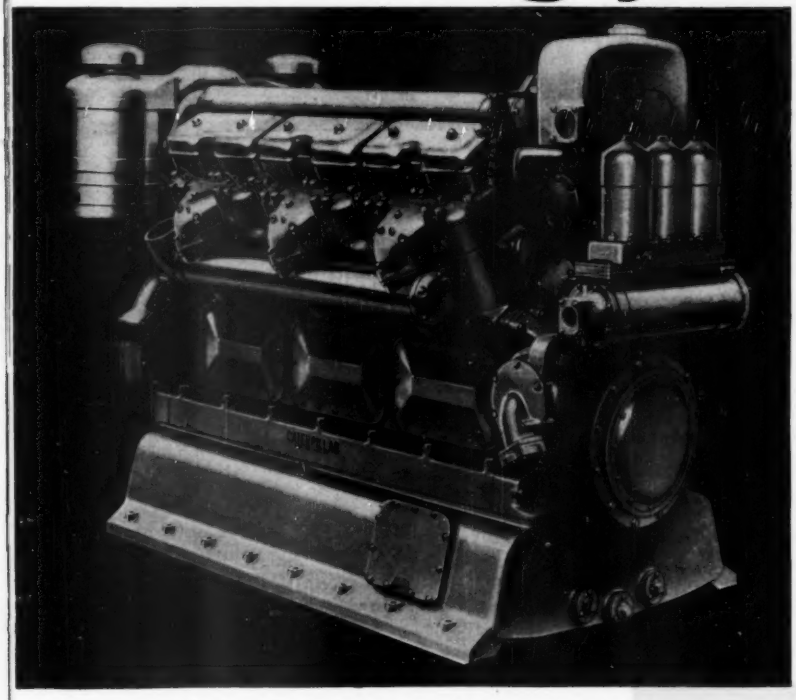
346 The A. M. Byers Co., Pittsburgh, Pa., will send you a bulletin telling how, through the use of wrought iron, the problems of corrosion in sewage treatment can be minimized. Wrought iron provides trouble-free service at low initial cost.

Cast Iron Mains Good for Centuries

347 In Philadelphia, a cast iron water main that has passed its 132nd birthday is still in service. And in 25 representative cities, 96% of all 6-inch and larger cast iron water mains ever laid are still in service. For further details about the advantages of cast iron pipe write Cast Iron Pipe Research Assn., T. F. Wolfe, Engr., Peoples Gas Bldg., Chicago 3, Ill.

(Please turn to Page 25)

New BIG YELLOW ENGINES built to handle big jobs



The new "Caterpillar" Diesel D397 Engine, delivering 500 maximum hp. Other new engines are the D386, 400 hp.; D375, 335 hp.; and D364, 265 hp.

Municipal engineers have learned from long experience that they can rely on "Caterpillar" Diesel power for trouble-free, long-life performance. In cities and towns from coast to coast the stamina and quality of these big yellow engines have been thoroughly proved.

Now four new, bigger "Caterpillar" Diesel Engines, ranging up to 500 hp.—and four new Electric Sets generating up to 314 kw.—offer continuous, dependable power for airports, hospitals, water pumping, sewage disposal, rock crushing, municipal power plants, and hundreds of jobs vital to the welfare and progress of your community.

"Caterpillar" dealers are located in over 280 towns and cities throughout the United States and Canada. Wherever you are, their complete stocks of parts and factory-trained service men are close at hand. Your "Caterpillar" dealer is a power expert. Discuss your power problems with him. There are no obligations.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

CATERPILLAR DIESEL

REG. U. S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

CATERPILLAR TRACTOR CO.
Box AC-9, Peoria, Illinois

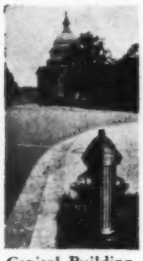
Please send me full specifications on the new "Caterpillar" Diesel Engines and Electric Sets.

*Signed*_____

*Address*_____

*City*_____ *State*_____

Many are the reasons why Smith hydrants are used by America's leading cities

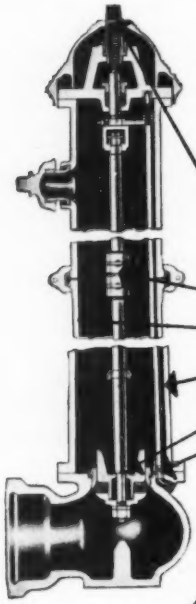


Capitol Building, Wash., D. C.

George Washington Bridge, N. Y.

Independence Hall, Phila.

Empire State Bldg., N. Y.



New York—Philadelphia—Washington—Baltimore—St. Louis—Providence and scores of other cities throughout the nation use SMITH hydrants—and not without good reason. A few of these reasons can easily be seen upon inspection of the hydrant section shown at the left.

1 Working parts easily removed from top.
2 Frangible couplings for collision protection.
3 Maximum flow due to large stand pipe areas.
4 Tapered, frost-proof barrel
5 Compression-type valve.
6 Positive action drain—always closed when main valve is open.

31

GATE VALVES
CHECK VALVES
FIRE HYDRANTS
INSERTING VALVES
TAPPING SLEEVES AND VALVES
WATER SERVICE BRASS GOODS

THE A. P. SMITH MFG. CO.
ESTABLISHED 1896
EAST ORANGE, NEW JERSEY

FLOOR STANDS
INDICATOR POSTS
TAPPING MACHINES
INSERTING MACHINES
PIPE CUTTING MACHINES
CORPORATION TAPPING MACHINES

Your Catalog Supply Service

The Coupon on Page 21 Will Get You a Quick Reply

Good Advice on Uniforms

348 The foundation of a long-wearing, color-holding, smart-looking uniform is the fabric. For suggestions and facts on fabrics for police and firemen's uniforms write American Woolen Co., 225 Fourth Ave., New York 3, N. Y.

10-Ton Roller Weighs 230 Pounds

349 Striking 1,750 to 2,000 blows per minute the Wayer Impactor supertamps, finishes, and cures 60 to 80 square feet per minute of bituminous or dry concrete pavement patching. It works flush to walls, curbs, or tracks. A heated plate cures the surface, making it ready for immediate traffic. The one-man operated machine is described in Bulletin 25-B; write the Wayer Impactor Sales Co., 12 N. Third St., Columbus 15, Ohio.

Fire Hose Record Blanks —Free

350 The Bi-Lateral Fire Hose Co., 20 N. Wacker Drive, Chicago 6, Ill., will send you without charge pads of 50 fire hose reports or 5 by 8½-inch fire hose record cards. These are of value in obtaining exact comparative records of performance of different brands of hose.

Residential Street Lamp

351 Spherolite Jr. luminaires, offering a choice of 2-way (along street) or 4-way (intersection) light distribution, are especially suitable for residential areas with narrow streets and wide spacings. For complete information write Line Material Co., Milwaukee 1, Wis.

Clean Sewers with Power Unit

352 The Turco Maxi-Power Unit No. 2, described in a catalog offered by the Turbine Sewer Machine Co., 5210 W. State St., Milwaukee, Wis., has 3-speed transmission, no-clutch free spooling, selected speeds, bucket swing positioner. This power sewer cleaning unit may be obtained water or air cooled.

Sanitary Septic Tank Cleaning

353 The Gorman-Rupp Co., 343 N. Bowman St., Mansfield, Ohio, produces an Odorless Sanitary Cleaner that eliminates the open tank, diaphragm hand pump, shovel, and other makeshift equipment used in cleaning septic tanks. It cleans a 1,000-gallon tank in 20 minutes. Ask for Bulletin 7-ST-11.

Motor-Operated Valve Control

354 The Limitorque motorized valve operator in portable form can be adapted for use wherever a hand-drawn truck can be wheeled to a valve or sluice gate location to provide electric opening and closing. Write for the 96-page catalog sent by the Philadelphia Gear Works, Inc., Erie Ave. and G St., Philadelphia 34, Pa.

No More Valve Box Troubles

355 Those headaches that water superintendents have had to face when installing and adjusting valve boxes are at an end with the new Amcast designs developed by American Casting Service, 1508 S. Kenneth Ave., Chicago 23, Ill. The box adjusts easily to grade and provides positive protection against shock from street traffic. When writing, also ask for the latest information on the Opelika curb boxes.

Cut Snow Removal Costs With Spreader

356 Tarco's stainless steel salt spreader not only insures safe, ice-free pavements but eliminates that municipal headache—brine damage complaints. The Scotchman's bird-shot pattern assure maximum coverage with minimum waste. Write the Tarrant Mfg. Co., East Ave., Saratoga Springs, N. Y.

Oversize Threaded Joint Cuts Installation Time

357 The 2½-inch threaded joint produced by the McWane Cast Iron Pipe Co., Birmingham, Ala., has hex grips that hold the wrench firmly and make it easy to lay McWane 2-inch cast iron pipe: all you have to do is screw them together.

Solve Leaf Cleaning Problem With Vacuum Loader

358 The Leaf Loader Div., American Structural Steel & Tank Co., 21050 W. 8 Mile Rd., Detroit 19, Mich., will send you a leaflet describing its vacuum Leaf Loader. The advantages of this machine are that it is mechanized, speedy, sanitary since there is no danger of filth accumulations, and economical.

Quick Installation Of This Pipe

359 With its rubber and steel joint, Lock Joint reinforced concrete pressure pipe is installed quickly in extremes of heat or cold, in wet ditch or dry, and with only one pull-shovel to excavate and install. No calking or bolting, and the pipe may be back-filled immediately. Write the Lock Joint Pipe Co., P. O. Box 269, East Orange, N. J.

Facts on Parking Meters

360 *Parking Meters Are the Answer to Traffic Congestion* is the title of a 42-page booklet that explains exactly how meters can be used not only to bring in revenue but also to actually clear up traffic headaches. Write Mi-Co Meters Div. of The Michaels Art Bronze Co., Inc., 231 Court St., Covington, Ky.

Mobile Radio Communication For Municipal Department

361 Philco mobile communications systems, with the exclusive advanced FM phase modulator and detector assure clear, crisp speech intelligibility and excellent reproduction even at weak-signal level. Write for literature to the Industrial Div., Philco Corp., Dept. DA9, Philadelphia 34, Pa.

Pre-Coated Scotchlite

362 No more spray booths, hand brushing, or spraying is necessary and no messy clean-up jobs with the new pre-coated wide-angle Scotchlite reflector material. Just strip off the protective backing and apply the adhesive activator. For complete information, write the Minnesota Mining & Mfg. Co., St. Paul 9, Minn.

Soft Water Pleases Citizens, Attracts Industry

363 A good municipal water supply is important not only to the residents of your community as far as present usage is concerned, but also because of the benefits they may receive as a result of new industry in the municipality. For information on water softening, and iron, dirt, taste, and odor removal, write the Permutit Co., Dept. A-9, 330 West 42nd St., New York 18, N. Y.

Lasting Seal of Stops, Cocks

364 The Mansfield Micro-Seal forms a positive seal indefinitely for curb and corporation stops, and hydrant cocks. A smooth fit of bore and plug is obtained, and the Micro-Seal stops are tested to resist pressures far beyond the safety factor. Write the Mansfield Water Works Brass Co., 287 North Diamond St., Mansfield, Ohio.

Pumps to 4,000 gpm

365 The Aurora horizontally split case, double suction, single-stage, centrifugal pump comes in capacities to 4,000 gpm and heads to 300 feet. The upper half of the casing may be removed without disturbing suction or discharge. Ask for Condensed Catalog M, the Aurora Pump Co., 66 Loucks St., Aurora, Ill.

Coupled Steel Water Line Absorbs Traffic Vibration

366 Factory-made steel pipe and factory-made Dresser couplings eliminate the variables of field fabrication. Each joint is permanently flexible-tight to absorb traffic vibration and other underground stresses. Write for *A Report of Coupled Steel Water Lines* to the Dresser Mfg. Div., 59 Fisher Ave., Bradford, Pa.

7 Jobs by Guniting

367 Bulletin No. 10 tells how the process used by the Gunite Concrete and Construction Co., 1301 Woodswether Rd., Kansas City 6, Mo., serves to line structures, repair, fireproof, encase, waterproof, insulate, and build. The method is that of ejecting a sand-cement mixture that has been hydrated at the nozzle.

Magnetic Sweeper Picks Up Nails

368 The Columbia Engineering Service Co., 593 Market St., San Francisco 5, Calif., makes a magnetic sweeper for picking up nails and other iron debris from streets, airports, yards, or floors. With the magnetism guaranteed for 10 years, the Cesco magnetic sweeper provides a completely self-contained unit that requires no auxiliary equipment such as generators, motors, or wiring for operation.

Discourage False Alarms

369 Arrestolarms give a loud and distinctive warning of a minute's duration when a fire alarm box is operated, attracting the attention of the police, local residents, and passers-by—a definite deterrent to false alarms. It may be attached to any standard Gamewell fire alarm box. Write The Gamewell Co., Newton Upper Falls 64, Mass.

Portable Trash Incinerator

370 A 95-pound park incinerator on wheels that is pulled around and operated by one man is offered by County Specialties, P. O. Box 626, Port Chester, N. Y. It is 6 feet long, 3-1/3 feet high, holds 18 cubic feet of leaves or paper, and has an ash catcher to protect the grass. In addition to parks, it has obvious uses at beaches, golf courses, and cemeteries.

Don't Lose Revenue In Water Metering

371 If the water meter does not register with complete accuracy, your water department is either going to lose revenue or lose good will as the result of overcharging. For data about Pittsburgh-Empire meters, write the Pittsburgh Equitable Meter Div., Rockwell Mfg. Co., Pittsburgh 8, Pa.

(Please turn to page 26)

"WE USE Scott Air-Pak because:

—*it helps us to*

- Protect lives
- Reduce property losses
- Improve department efficiency

RESULT: an outstanding safety record"

ESTABLISHED IN 1932 Scott FOR SAFETY - FOR SERVICE

Write for full details on Scott *Air-Pak* Safety Breathing Equipment in *Bulletin* 510.

See us at the
INTERNATIONAL FIRE CHIEFS CONVENTION
New Orleans, Sept. 26-29
Booths 14, 15, 16

SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.
191 ERIE ST. LANCASTER, N. Y.
In Canada: Safety Supply Company, Toronto, Ont.

Check and Mail

Use the Coupon on Page 21

Don't be Caught Fiddling While Your Municipality Burns

372 Is your community's fire-fighting equipment adequate for all emergencies? If not, investigate the products made by the Oren Roanoke Corp., Roanoke, Va. This company will send you information on its models designed with 750- to 1,000-gpm pumps and 190- to 240-hp engines.

Traffic Control With the Right Signs

373 The Eastern Metal Products Co., Elmira Heights, N. Y., will send you information on its line of rustproof, cast aluminum reflectorized markers. Ask for Catalog No. 8.

Garbage Disposer Reduces Cost Of Collection, Health Department

374 It is not only the housewife who appreciates the convenience of a kitchen garbage disposer, it is also the municipal garbage collection and health departments in the resultant lowered costs and increased efficiency. Write for information about the American Kitchens Di-poser to the AVCO Mfg. Corp., Connersville, Ind.

Street Sweeper Holds 1¼ Yards

375 The South Bend Model E Gutter-Snipe pick-up street sweeper sweeps 6 feet wide, holds 1¼ yards of dirt, turns in a 19-foot circle, and can sweep up a 10% grade. Write the Municipal Supply Co., South Bend 23, Ind.

Dual-Fuel Diesels Give Greatest Economy

376 The Superior dual-fuel diesel engines enable communities to burn low-cost gas in the summer and switch to oil in the winter when gas is in short supply, taking advantage of fuel costs to effect the greatest economy. Write for a booklet about the push-button fuel-selecting diesel to the National Supply Co., Superior Engine Div., Springfield, Ohio.

Standardize On Meters For Economy of Interchanging

377 With Trident meters, interchangeability is possible not only of parts, but also of registers, gear trains, measuring chambers. This means an economy of original cost and storage space as well as time. Write the Neptune Meter Co., 50 West 50th St., New York 20, N. Y.

Bronze Plaques

378 Newman Brothers, Inc., 659 W. 4th St., Cincinnati 3, Ohio, will send you its catalog of tablets and data on bronze, aluminum, or stainless steel doors, railings, gates, grilles. The plaques, of hand-chased bronze, form long-lasting dedicatory reminders.

Trailer Holds 7 Tons

379 The Model 22 trailer made by the Martin Machine Co., Kewanee, Ill., has a capacity of 5 to 7 tons—and a platform low enough for the loading of rollers, tractors, or bulk material. Write for illustrated printed matter.

High-Speed Loading With This Refuse Truck

380 The Leach Packmaster has a packing cycle that is completely automatic by hydraulic control. As soon as the cubic-yard hopper is filled, the operator pulls a lever, the rear door rolls down, and the packing plate scoops the load into the body to be packed at 25,000 pounds of pressure. Write the Elgin Corp., 501 Fifth Ave., New York 17, N. Y.

(Please turn to Page 27)

Stop—Check and Mail

Use the Coupon on Page 21

Meter Discs

381 The Fred W. Hanks Co., 10624 St. Clair Ave., Cleveland 8, Ohio, will send you information on its line of water meter discs for both new meters and for effecting reliable meter repairs.

Pipe Puller and Pusher Cuts Costs

382 With a Trojan pipe puller and pusher, pavement does not have to be broken, landscaped areas do not have to be destroyed. This machine operates continuously with no re-setting of the grip. Models are available for pipe from ½ to 2 inches. Write The Trojan Mfg. Co., 441 E. Water St., Troy, Ohio.

Strong Material For Good-Looking Uniforms

383 Reeves Brothers, Inc., 54 Worth St., New York 13, N. Y., manufactures a variety of materials that are strong and durable for use in making uniforms for municipal personnel. Write for information about Reeves Army Twill—sanforized, vat-dyed, washable.

Check Valves Seat Without Slam

384 The Rensselaer Valve Co., Troy, N. Y., will send you information on how to eliminate check valve slam on pump shut down to achieve low loss of head, and long valve life. The company's check valves have adjustable spring tension that seats the gate as soon as the water column in the discharge line comes to rest.

Floodlighting For Nighttime Playgrounds

385 One way to cut down on juvenile delinquency is to provide a place for adolescents to play after the sun goes down. Every empty lot, lighted by floodlighting, is a potential playground for night use. Ask for *Floodlighting for Nighttime Sports*, the Revere Electric Mfg. Co., 6015 Broadway, Chicago 40, Ill.

Improved Paving Breaker

386 The R. P. B. Corp., Dept. D, 2751 E. 11th St., Los Angeles, Calif., will send you information on its Mighty Midget paving breaker, operating on 105 cfm compressors. This machine breaks asphalt and concrete, tamps backfill, and gives high density.

Diesels

387 The Nordberg customers have a habit of coming back for repeat orders. Recently one small city installed a fifth Nordberg engine unit electric plant. To learn about these popular diesel engines, write to Nordberg Mfg. Co., Milwaukee 7, Wisc.

Picks Up and Bales Leaves

388 The Parker-Springfield Fairway Baling sweeper picks up and bales leaves and debris at the rate of 500 bushels per hour. The baling canvases have 25-bu-hel capacities. Write for a folder to the Parker Pattern and Foundry Co., 91 Bechtle Ave., Springfield, Ohio.

Be On the Safe Side With Fencing Protection

389 The Wickwire Spencer Steel Div., 361 Delaware Ave., Buffalo 2, N. Y., will send you a free estimate of the costs for using Realock fence. Fencing provides permanent protection against trespassing, vandalism, and other hazards; especially when it is made of steel wire, heavily galvanized.

Fire Fighting with Spray

390 Bete industrial nozzles shear a continuous spiral sheet from a single sheet and produce an extremely fine fog at relatively low pressures, permitting lower equipment and maintenance costs. Write for data to the Bete Fog Nozzle Co., 278 Main St., Greenfield, Mass.

Steel Lighting Poles Streamline Streets

391 The National Tube Co., Frick Bldg., Pittsburgh 19, Pa., will send you its Bulletin No. 14 describing how to streamline your streets with modern-looking tubular street lighting standards. An advantage of steel is that its strength permits desired height with minimum base diameter offering less visual obstruction and consequent hazard.

Motor Graders— And What They Do

392 Shaving two inches of blacktop from a bridge without injuring the wooden floor is one of the jobs performed by the Cat motor grader and illustrated in a 16-page booklet published by the Caterpillar Tractor Co., Peoria 8, Ill. Other operations include casting ditched material, mixing and spreading a-phalt, back sloping, snow plowing.

Brass Goods

393 M. Greenberg's Sons, 765 Folsom St., San Francisco 7, Calif., is offering a 115-page brochure that gives full descriptions of the company's variety of brass goods; bronze valves and fittings, fire hydrants, Josam drains and interceptors. Ask for Catalog S.

Fire Pumps That Are Frost-Proof

394 American-Marsh Pumps, Inc., Battle Creek, Mich., will send you an illustrated brochure showing why its Barton-American Type-UA front-mounted, gear-driven centrifugal fire pumps provide frost-proof service. The water is always at engine temperature and will keep the pump well above the freezing point even in severely cold weather.

Clean Sewers From the Ground Level

395 Flexible power bucket machines clean sewers from the ground level. By means of this machine, sewers are thoroughly cleaned, increasing their capacity. Even roots in the sewers can be dislodged. Write the Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34, Calif.

Supplementary Power

396 Johnson combination drives will provide the power for continuous water supply, drainage pumps, sewage service, and other municipal requirements. Write about these suppliers of supplementary power to the Johnson Gear and Mfg. Co., Berkeley 2, Calif.

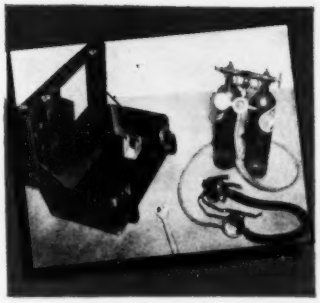
Double-Gate Valve

397 The Eddy Valve Co., Waterford, N. Y., subsidiary of James B. Clow & Sons, will send you information about its double-gate valve for the regulation of water distribution.

Modern Water Storage

398 The Pittsburgh-Des Moines Steel Co., 3412 Neville Island, Pitt-burgh, Pa., will send you a 20-page bootlet entitled *Modern Water Storage in Elevated Steel Tanks*. The booklet describes the advantages of this type of water storage, resulting from the steady pressure in distribution.

(Please turn to Page 29)



Improve Rescue Methods at low cost — with the Scott DEMAND Inhalator

The new Scott *Demand* Inhalator provides efficient portable oxygen facilities for victims of smoke or fumes, at low cost. Offering "demand" flow of oxygen, plus constant flow if needed, the Scott *Demand* inhalator can be used independently or as supplemental equipment in resuscitation, freeing resuscitators for use elsewhere.

The Scott *Demand* Inhalator is simply designed, easy to use. No adjustments of any kind are needed; department personnel does not require special training to use this new Scott product. Precision manufactured by the makers of famous Scott *Air-Pak* Safety Breathing Equipment.

Improve rescue methods with the new Scott *Demand* Inhalator, at this remarkably low cost:

TYPE B UNIT, as illustrated above, less cylinders—for use on one person **$147.50**

TYPE C DUAL-UNIT, without cylinders, for use on two persons **$205.00**

SPECIAL OFFER!!!

Order one or more Scott *Demand* Inhalators by mail. If for any reason you are not *completely satisfied* return the equipment within ten days and your money will be refunded.

Send check or money order today!

SCOTT AVIATION CORP.
191 ERIE ST., LANCASTER, N. Y.

Please send me..... Scott Type (B), (C) *Demand* Inhalator Units, with the understanding that if I am not satisfied and return the equipment within ten days the complete purchase price will be refunded.

☐ Check ☐ Money Order for $..... is enclosed

Name.....

Title.....

City.....

State.....

Scott

SCOTT AVIATION CORP.
191 Erie St., Lancaster, N.Y.
Canadian Safety Supply Company, Limited

AT HISTORIC RICHMOND, VIRGINIA

5 DROTT Bullclam Shovels Construct 5 Sanitary Fills

ROBERT E. LEE
One of Richmond's many statues of its famous men.

DUMPS LIKE THIS ARE CLOSED! Unsightly, unpleasant, disease-harboring . . . Richmond replaced this and other dumps like it with clean, healthful, economical Sanitary Fills.

ONE OF RICHMOND'S FIVE SANITARY FILLS. A typical finished section. The Drott Bullclam Shovel handles the final finishing as well as all the other operations — digging trenches or building the ramps (depending on type of fill used), compacting and covering the refuse.

RICHMOND'S MAYOR INSPECTS A FILL (with hat) . . . watches Drott Bullclam Shovel as it thoroughly chews up and compacts refuse. This is the trench method. But no two of Richmond's fills are operated exactly alike — a tribute to the capable planners and directors, Mr. R. S. Hopson, Chief of the Bureau of Refuse Collection and his assistant, Mr. Joseph Garrett, who make the most of the flexibility of their five Drott Bullclam Shovels.

Operated by DROTT POSITIVE CLOSED HYDRAULIC SYSTEM • SMOOTH • QUICK • DEPENDABLE. Keeps dirt and air out . . . keeps oil in! Used successfully on Drott equipment for many years.

FREE

On request; descriptive catalog and list of cities using Drott method. Also cost data on collection and sanitary fill equipment.

DROTT
EQUIPMENT

DROTT MANUFACTURING CORP.
3041 W. WISCONSIN AVE. MILWAUKEE 8, WISCONSIN

Stop--Check and Mail

Use the Coupon on Page 21

Standard Size Files— But More Room

399 The Super-Filer has a swing front that pulls forward automatically to give the working space that must normally be provided for by loose filing. Self-adjusting Divide-a-Files provide a rearward slope for added facility. Write for literature to the General Fireproofing Co., 500 Fifth Ave., New York 18, N. Y.

A Report on Anthracite

400 The Anthracite Equipment Corp., Wilkes-Barre, Pa., has prepared a report outlining the program it conducted on research, special activities, field representatives, and public relations. The report is of particular value to officials in charge of plants using anthracite since new developments are discussed in detail.

Fire Station Plans

401 Volume 2 of *Fire Station Design* is now available without cost from The Circul-Air Corp., 575 E. Milwaukee, Detroit 2, Mich. It is a 36-page collection of plans by leading architects. The houses are in a moderate price range.

Fire and Police Flasher Light

402 A bright red flare of light flashing on and off sixty times per minute commands attention. The Trippe fire and police Flasher Light may be obtained lettered—Police, Sheriff, Stop, etc. Write for a bulletin to the Trippe Mfg. Co., 2610 W. 16th St., Dept. 9, Chicago 8, Ill.

Chlorinator Finds Many Uses In the Sewage Plant

403 The W & T Chlorinator made by the Wallace and Tiernan Co., Inc., Newark 1, N. J., is used in the sewage plant for such purposes as disinfection, odor control, reduction of corrosion and concrete disintegration, BOD reduction, improvement of settling, conditioning of return supernatant liquid, and sludge conditioning.

Tractor Excavator Does Many Jobs

404 The Traxcavator may be used for road widening, street grading, loading fill material, and many other jobs. Write to the Trackson Co., Dept. AC-99, Milwaukee 1, Wis., for data on the various styles and sizes.

Pneumatically-Placed Concrete for Durability

405 The Gunite Construction Corp., 420 Lexington Ave., New York 17, N. Y., will send you engineering data on its method of guniting in the restoration of disintegrated concrete, dam and bridge repairs, steel encasement and fireproofing, sewer and water pipe lining, pressure grouting.

Advantages Of Elevated Water Storage

406 Through the use of distributed elevated water storage, more uniform pressures are maintained in the mains throughout the water distribution systems and more efficient use of pumping equipment results because the tanks can be filled during periods of low demand. Write the Chicago Bridge & Iron Co., 2127 McCormick Bldg., Chicago 4, Ill.

Good Lighting

407 The Crouse-Hinds Co., Syracuse 1, N. Y., will send you its recommendations on the selection and arrangement of floodlights best suited for your municipal sports field or arena.

Costs Go Down For Cribbed Retaining Walls

408 Pre-cast concrete cribbing is easily laid by unskilled labor and in constructing this type of retaining wall there are no footers, forms, or drainage problems. Write the Universal Concrete Pipe Co., 297 S. High St., Columbus 15, Ohio; ask for Bulletin C-49.

Technical Bulletins On Chemicals

409 The Solvay Sales Div., Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y., will send you its Bulletin No. 7 on *Liquid Chlorine;* No. 8, *Alkalies and Chlorine in the Treatment of Municipal and Industrial Wastes;* and Bulletin No. 11, *Water Analysis.*

Meter Chlorine Gas Accurately

410 The Builders Model DVS Chlorinizer is designed to accurately meter chlorine gas and to produce and deliver a pre-standard chlorine-water solution. For illustrated folder, write Builders-Providence, Inc., Providence 1, R. I.

Good Fire Hose Is Important

411 Quaker fire hose comes in types to withstand from 200 to 400 pounds pressure in sizes from 1 to 3 inches. Also made by the Quaker Rubber Corp., Comly and Milnor Sts., Philadelphia 24, Pa., are couplings, fire engine suction hose, and fire extinguisher tubing.

Concrete Surfacing

412 The Whiteman Mfg. Co., 3249 Casitas Ave., Los Angeles 26, Calif., will send you literature on its new combination disc float for floating concrete surfaces. It features an easy conversion to a standard trowel for finishing the wearing surface.

Earth Boring Tool Speeds Up Pipe Installation

413 Even the toughest earth formations, like rotten rock, succumb to the Hydrauger earth boring tool. The costs and time expenditures of trenching and the possible damage to coated, wrapped, or large-size pipe are eliminated. Send for Catalog 8 to the Hydrauger Corp., Ltd., 681 Market St., San Francisco 5, Calif.

Guard Against Infiltration In Sewer Lines

414 With Transite sewer pipe the danger of infiltration is cut to a minimum because of the special sleeve-type joint and the 13-foot lengths that reduce the number of joints in the line. For further details, write Johns-Manville, Box 290, New York 16, N. Y.

Hand-Operated Line Painter

415 The Little Giant Handi-Liner paints traffic lines almost as fast as the operator can walk. Practically maintenance free because there are no moving parts to get out of order, the mechanism uses any good paint. Write for a circular to Lasting Products Co., Franklintown Rd. Plant, Baltimore 23, Md.

Main Line Meters For Water Works Economy

416 Sparling main-line meters guarantee accuracy within 2 per cent. Easy and inexpensive to install, the meters prevent loss of revenue from unknown leaks. Write for Bulletin 310, to R. W. Sparling, Box 3277, Terminal Annex, Los Angeles 54, Calif.

Machine and Accessories Does Work of Eight Men

417 The 5-hp Gravely tractor with its 17 attachments, such as the lawn mower, gang mower, sickle mower, 50-gallon sprayer, power sweeper, snow plow, and air compressor, will do the jobs that ordinarily will require an additional staff of eight. Write for a catalog to the Gravely Motor Plow and Cultivator Co., Box 973, Dunbar, W. Va.

Self-Supporting Cable For Overhead Lines

418 Hazard self-supporting pre-assembled aerial cable, messenger, and binder are all installed in one operation. The conductor is protected against moisture, sun, cold, abrasion. Write the Hazard Insulated Wire Works, Div. of the Okonite Co., Wilkes-Barre, Pa.

Combination Signal Flare, Emergency Light

419 The No. 400-F Big Beam electric flare is described in a folder available from the U-C Lite Mfg. Co., 1056 West Hubbard St., Chicago 22, Ill. The visibility in all directions of the 400-F is over 600 feet and the flashes per minute are from 112 to 120. The burning life of the batteries is about 28 hours of continuous flashing use, 20 hours of steady-flare continuous use, and longer on intermittent use.

Cast Iron Pipe and Fittings

420 Clow cast iron pipe is centrifugally cast in sizes from 3 to 24 inches in 18-foot lengths for all pressure requirements. The pipe can be easily cut in the field. Joints available are bell and spigot, mechanical, and flanged. Write James B. Clow & Sons, 201-299 North Talman Ave., Chicago 80, Ill.

Pumps

421 The Pacific Pumping Co., 9201 San Leandro St., Oakland 3, Calif., will send you data on its line of pumps for every service. Among the pumps made are side-suction in sizes from 1 to 6 inches, discharge with capacities to 2,000 gpm and heads to 280 feet. Write also for data about split-case and sewage pumps.

Need Fire Hose?

422 A new catalog on its line of hydraulic control hose has been published by the B. F. Goodrich Co., Akron, Ohio. The hose is made with special wire braid to give greater toughness and flexibility, and it accommodates working pressures ranging from 300 to 5,000 pounds per square inch, depending on size and construction.

Fight Fire with Fog

423 Fognozle equipment, which sprays a water fog in fire-fighting, produces a uniform-particled fog blanket to quench fires quickly. Write for Catalog 49-A, Fog Nozzle International, Inc., 1520 E. Slauson Ave., Los Angeles 11, Calif.

Remove Turbidity, Color, Hardness Before Filtration

424 The right kind of treatment to remove turbidity, color, hardness from water before it goes to the filters spells the difference between good operation and bad, a good plant and a poor one. A booklet tells how to get the equipment that will give the best treatment for your particular water. Write The Dorr Co., Engineers, 570 Lexington Ave., New York 22, N. Y.

Beat the Blizzards with BAKER PLOWS

Start now to beat next winter's snow. Be sure you have enough plows and be sure they're BAKERS . . . standard of the snow belt for forty years. Baker plows are built for modern high speed highway plowing and there's a Baker V-type, one way or reversible plow for any job and any truck . . . also available for wheel and crawler tractors and motor graders. A new catalog on the complete line of Baker truck plows is now ready. Write for your copy. The Baker Manufacturing Co., Springfield, Ill.

BAKER

SNOW PLOWS SINCE 1908

TRAFFIC CONTROLLERS

Buy with an eye to the FUTURE

Did you know that you can provide today for all future expansion of your traffic control system? Think of it! One Marbelite "foundation installation" now... to meet your immediate needs. Then, whenever you please, simply add one or more MARBELITE jack-connected Dials...

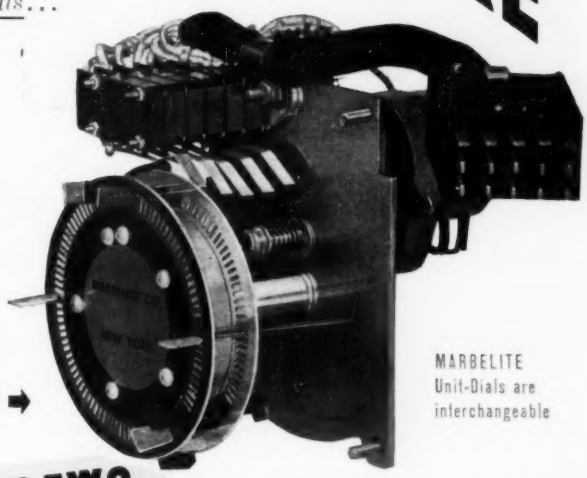
SPECIFY

MARBELITE

MULTI-DIAL

CONTROLLERS

...with the Marbelite Unit-Dial ➡

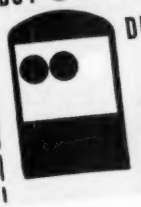


MARBELITE Unit-Dials are interchangeable

BUY ONE DIAL *Now*

...to meet your present needs. Specify Two-Dial Foundation. Add another Dial later.

BUY ONE OR TWO DIALS *Now*



...to meet your present needs. Specify Three-Dial Foundation. Add one or two Dials later.

THE MARBELITE COMPANY, INC.
27 WARREN STREET, NEW YORK 7, N. Y.

GENTLEMEN:
Please send me complete details of *Marbelite* Multi-Dial controllers providing for future expansion.

Name .....
Address .....
City ..... Zone .....
State .....

THE MARBELITE COMPANY, INC. • 27 WARREN STREET • NEW YORK 7, N. Y.

Barber-Greene

Standardization
gives you a "custom-built" permanent B-G Conveyor system at "ready-made" cost. You benefit, too, by complete interchangeability and adaptability of units. You can shorten, lengthen or move your conveyor as your needs change.

less "blueprint work" easier assembly with standardized conveyors . . . .

It's easier to select the right B-G Conveyor for your particular job—and easier to install it. That's because B-G Conveyors are *pre-engineered* and built of simple *standard* units.

Erection is little more than a matter of bolting the *standardized* units together. Frames and terminals are *pre-fabricated* . . . delivered to you, clearly marked, as complete, self-contained units. Drives and take-ups are factory-assembled, checked, tested and rated for load. B-G *pre-engineering* assures proper alignment and smooth, dependable operation on the job. What's more, you have a wide choice of equipment in the sizes and types that best meet your requirements.

Here's a "packaged" plan that may well provide the practical solution to one or more of your haulage problems. Why not call on our engineers to help you work out an efficient, economical system?

BARBER • GREENE COMPANY, AURORA, ILLINOIS

Constant flow Equipment

LOADERS | PERMANENT CONVEYORS | PORTABLE CONVEYORS | COAL MACHINES | BITUMINOUS PLANTS | FINISHERS | DITCHERS

They are the result of the closest kind of coordinated engineering and construction . . . requiring infinite capacity for attention to every detail from blueprint through the finished job . . . keen perception of economies in terms of sound, proved principles . . . integrity which gives peace of mind through the years . . . engineering and production facilities that reflect credit to every component no matter how small . . . and last but by no means least, a long, enduring, and constant personal association with the building and installing of dependable equipment.

THE NAMEPLATE OF

DEPENDABILITY

ROBERTS FILTER MANUFACTURING CO.

660 COLUMBIA AVENUE, DARBY, PENNA.

NEW Cyclone Snow-Blower Saves Money!

FAST, MODERN, ECONOMICAL

The Cyclone Snow-Blower strikes a happy medium between inefficient hand labor, and large, costly machines. It is widely used by cities and towns in cleaning streets, roadways and airports.

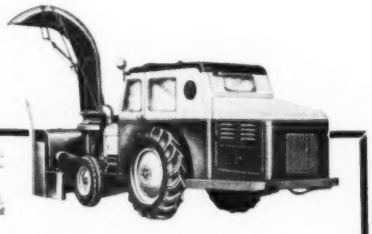
Tractor mounted, the Cyclone Snow-Blower is powered by its own engine in the rear of the cab. During summer months the blower, cab and engine can be easily removed and the tractor used for other purposes. Or a rotary broom for street cleaning, may be substituted for the blower.

A special feature of the Cyclone is the snow chute which rotates 300 degrees on ball bearings. The hinge-type chute is hydraulically operated, allowing maximum control for either loading trucks or in a blowaway.

Fast, economical to purchase and economical to operate, the Cyclone Snow-Blower is a dependable answer to large-scale snow removal.

Cyclone

If snow is a problem in your city, why not get the facts on Cyclone. Write or phone your nearest Distributor for full details.



TRIAD TRACTOR & IMPL. CORP. P. O. Box 90, Utica, N. Y.

NICOLL-TALCOTT CORP. P. O. Box 308, East Hartford 8, Conn.

GREAT LAKES TRAC. & EQ. CO. 2100 East Maple Road, Birmingham, Mich.

HOMMY HAMES TRACTOR SALES INC., 1000 Hobbie Avenue, Kankakee, Ill.

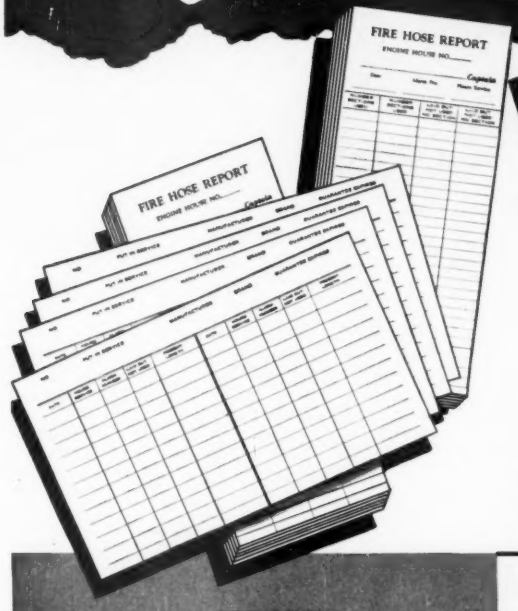
NORTHWEST TRACTOR & EQ. CO., INC., 419 North Fifth Street, Minneapolis 1, Minn.

WISCONSIN TRACTOR & EQ. CO., 520 North Main Street, Fond du Lac, Wisc.

Manufactured by Transport & Supplies Co., Ltd., Quebec, Canada

Free!

FOR ALL FIRE CHIEFS



FIRE HOSE REPORTS

FIRE HOSE RECORDS

Many leading fire departments have found these forms useful and valuable for these reasons:

They give the Chief an exact comparative record of performance of different brands of hose.

They prove by actual record which brand is best.

They show up cheap hose and why it is too expensive to use.

They show how long some sections of hose are allowed to remain at bottom of apparatus.

They give the Chief a factual, actual record on which to base his recommendations of preferred brands.

You will find these forms invaluable in your department. We again are offering them to all Fire Chiefs as a free service. There is no charge or obligation. Mail the coupon for your supply.

TRADE Bi-Lateral MARK

BI-LATERAL FIRE HOSE CO.
20 N. Wacker Drive, Chicago 6, Illinois

Without charge or obligation send me the following:

_____ Pads of 50 Fire Hose Reports

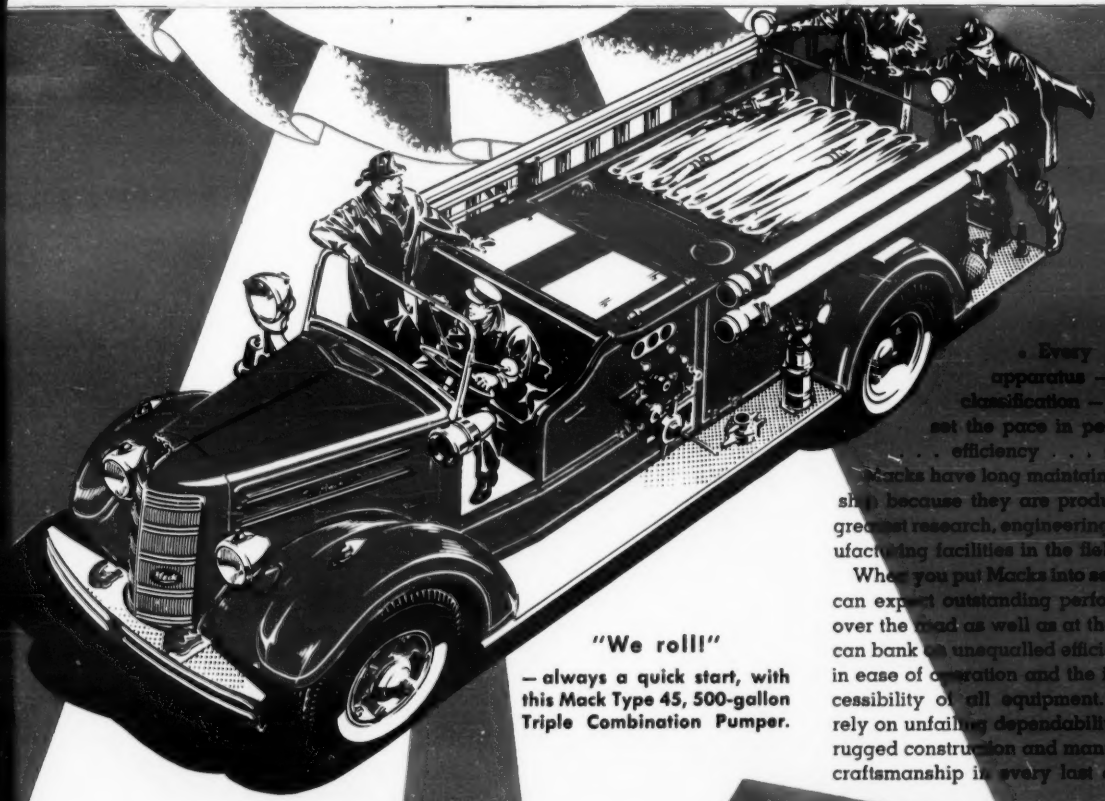
_____ Fire Hose Records (5" x 8½" cards)

Name_____

Department_____

Address_____ D

"Hook up and stretch in!"
— plenty of water with this Mack Type 95, 1,000-gallon Triple Combination Pumper.
MACK
Finest
in
fire apparatus
"It's a run!"
— and a fast one, with this Mack Type 75, 750-gallon Triple Combination Pumper.



"We roll!"
— always a quick start, with this Mack Type 45, 500-gallon Triple Combination Pumper.

for performance ...reliability ...service

Every Mack fire apparatus — in every classification — is built to set the pace in performance . . . efficiency . . . reliability. Macks have long maintained leadership because they are products of the greatest research, engineering and manufacturing facilities in the field.

When you put Macks into service, you can expect outstanding performance — over the road as well as at the fire. You can bank on unequalled efficiency, both in ease of operation and the instant accessibility of all equipment. You can rely on unfailing dependability, bred of rugged construction and manufacturing craftsmanship in every last detail.

And with Macks, you are assured of even more. Back of every Mack apparatus stands the coast-to-coast network of 67 Mack factory branches and over 600 dealers, ready to supply skilled service and quickly available parts. Your investment is doubly protected, too—for nearly 40 years of uninterrupted fire apparatus production testifies that no Mack model is ever an orphan.

Regardless of size, every Mack is a full-fledged fire-fighter, through and through. So whatever your needs or wherever your department, have your Mack representative show you why over 1,000 communities say, "You get the finest in fire apparatus when you Modernize with Macks!"

Mack FIRE APPARATUS

MACK MANUFACTURING CORPORATION
Fire Apparatus Division
Long Island City 1, New York

Factory branches and dealers for parts and service in all principal cities. In Canada: Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS — 500 to 2000 GALLONS . . . SQUAD AND HOSE CARS . . . AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

John BEAN Shade Tree Equipment

Rotomist (above) is readily mounted on light truck. It gives you better shade tree protection; saves material; cuts manpower; makes light work of what were formerly tough jobs handling spray guns.

Effective Insect Pest Control

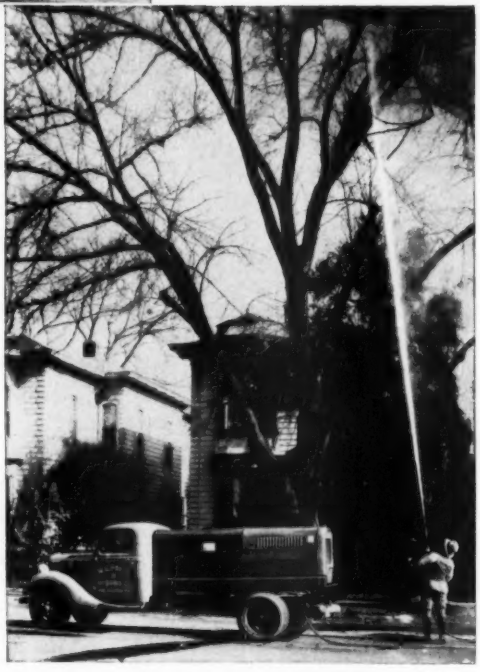
John Bean's complete line of specialized sprayers for shade tree work and for control of flies, mosquitoes and insect pests has met nation-wide approval. Whether your need is to make recreation areas pest-free, increase sanitary control, operate a community fly-control program, you'll find that a John Bean sprayer will do the job better and faster. Write for free Pest Control information.

Built to Fit All Your Needs

If you want fast operation, with thorough coverage and fatigue-free, one-man control, then the Bean *Rotomist* is the answer. The new 1949 *Rotomist* has many new design refinements and features that more than ever make *Rotomist* the best way to apply concentrates, dry dust or wet dust. Its aerodynamic design releases micron-sized spray particles that give complete coverage with a minimum of drift. It also eliminates deposit of spray material on cars or homes.

The operator has full visibility for efficient, easy operation with responsive hydraulic controls. Write for free Rotomist Catalog.

Whether your needs call for a conventional high pressure sprayer or a Rotomist concentrate applicator, you'll save time, money, material and maintenance cost with John Bean equipment.



The John Bean line includes models with outputs to 60 gallons per minute at pressures to 800 lbs. And, for hard-to-reach areas, back yards, etc., there are portable John Bean sprayers and concentrate applicators. Write for free, complete information on John Bean specialized shade tree and pest control equipment.

fmc

JOHN BEAN LANSING 4, MICHIGAN

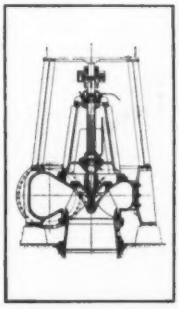
DIVISION OF FOOD MACHINERY AND CHEMICAL CORPORATION

Only

A GIANT PUMP can do YOUR BIG pumping job!

Morris MIXED FLOW PUMPS

And the giant Morris Mixed Flow Pump can do it! For large quantities of sewage, drainage, irrigation or flood water, the Morris Mixed Flow Pump handles the job efficiently, quietly and dependably. Protect and insure your community against the disaster of pump failure. Play safe with Morris Pumps. They have more than just correct "book design," they have the *extra stamina* to withstand the brutal punishment frequently imposed by unusual conditions.



Sectional view of a Morris 42" self-contained vertical sewage pump which handles raw sewage at 50,000 GPM against 25 feet TDH.

Morris Mixed Flow Pumps handle large capacities with unobstructed flow . . . Reduce operating and maintenance costs . . . Gives longer service.

SEND FOR FREE BULLETIN 178

TROUBLE-FREE FEATURES

- In the Morris Mixed Flow Pump liquids are directed to the impeller eye without the use of troublesome guides or diffusion vanes.
- The simple but scientifically correct design of the casing permits free, smooth flow of liquids with minimum eddying and turbulence.
- The impellers are carefully engineered to avoid cavitation. They are protected by renewable wearing rings on both the hub and suction sides.
- Renewable shaft sleeve protects the shaft through the stuffing box.
- Handholes or manholes in casing permit easy access to essential points of the pump.

Morris Mixed Flow Pumps are regularly built in sizes ranging from 12" to 60" diameter discharge and are ideally suited for capacities to 150,000 gpm in services like Sewage Treatment, Drainage, Irrigation, Flood Control.

Built in both *horizontal* and *vertical* types. For special use, Morris builds Mixed Flow Pumps to your specifications.

MORRIS MACHINE WORKS
Baldwinsville, N. Y.
Sales Offices in Principal Cities

MORRIS *Centrifugal Pumps*

9 California East Bay Cities Served By Allis-Chalmers

NEW BOOSTER PUMPING STATION IS EQUIPPED WITH A-C SWITCHGEAR, CONTROL PANELS, TRANSFORMERS AND MOTORS

WITHIN EIGHT YEARS, water consumption in the East Bay Municipal Utilities District has increased 134 percent. To meet this rising demand a new booster pumping station was constructed on the 94 mile Mokelumne Aqueduct. Combined with older facilities, this new station more than meets the water demands of the district.

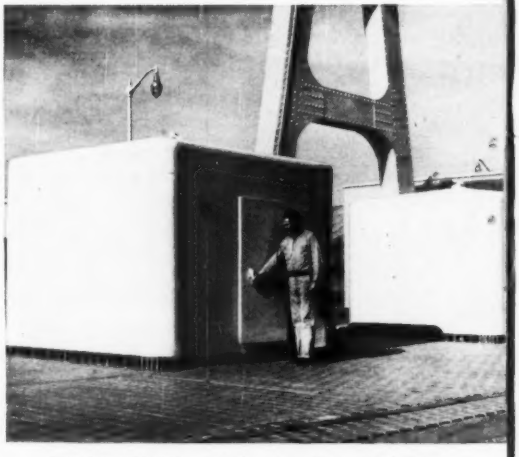
The electrical system of the new station is Allis-Chalmers equipped. A-C equipment here includes a bank of 2000 kva transformers, outdoor metal-clad switchgear, two 4000 hp vertical motors, and a panel and benchboard for the control room. Installed in 1945, this equipment has given efficient, reliable service.

This A-C equipped station is typical of what Allis-Chalmers can do and has done for all size cities — large, medium and small. When your community plans improvements, take advantage of Allis-Chalmers specialized knowledge in building the world's widest range of public works equipment. For more information write for bulletin 25B6607, "Public Works Equipment."

A-2777

ALLIS-CHALMERS, 1185A SO. 70 ST.
MILWAUKEE, WIS.

BANK of Allis-Chalmers single phase, 2000 kva power transformers at new pumping station of East Bay District. Units are equipped with no-load tap changers, side mounted for easy, simple changes. Transformers are also designed with *Oil-Sealed* inert gas systems which seal off cooling oil from outside air. This reduces contamination of cooling oil and prevents deterioration.

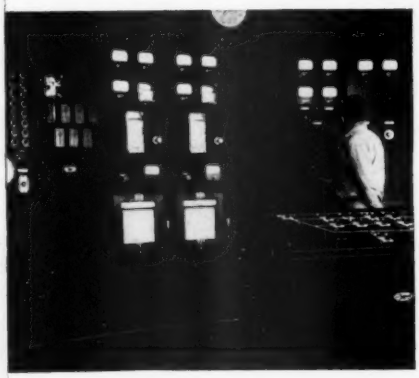


4000 HP, 900 RPM vertical motors drive centrifugal pumps. These motors were assembled at the site and enclosed in special weatherproof housings to insure safe outdoor operation. Motors and streamline housings were built by A-C.

Ruptair and *Oil-Sealed* are Allis-Chalmers trademarks.

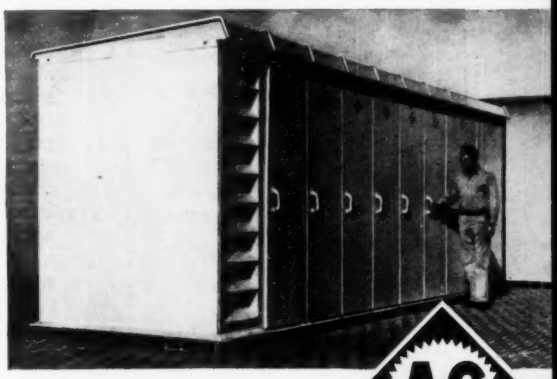
AREA SERVED by the East Bay Municipal Utility District includes Alameda, Albany, Berkeley, El Cerrito, Emeryville, Oakland, Piedmont, Richmond and San Leandro. Total area: 187 sq miles with a population of nearly one million. A portion of this area is shown above with Oakland-San Francisco Bay Bridge in the foreground.

Photo by Commercial & Photo View Company, Oakland, Cal.



MODERN type control switchboard and benchboard were designed by Allis-Chalmers to provide this station with reliably accurate automatic remote control.

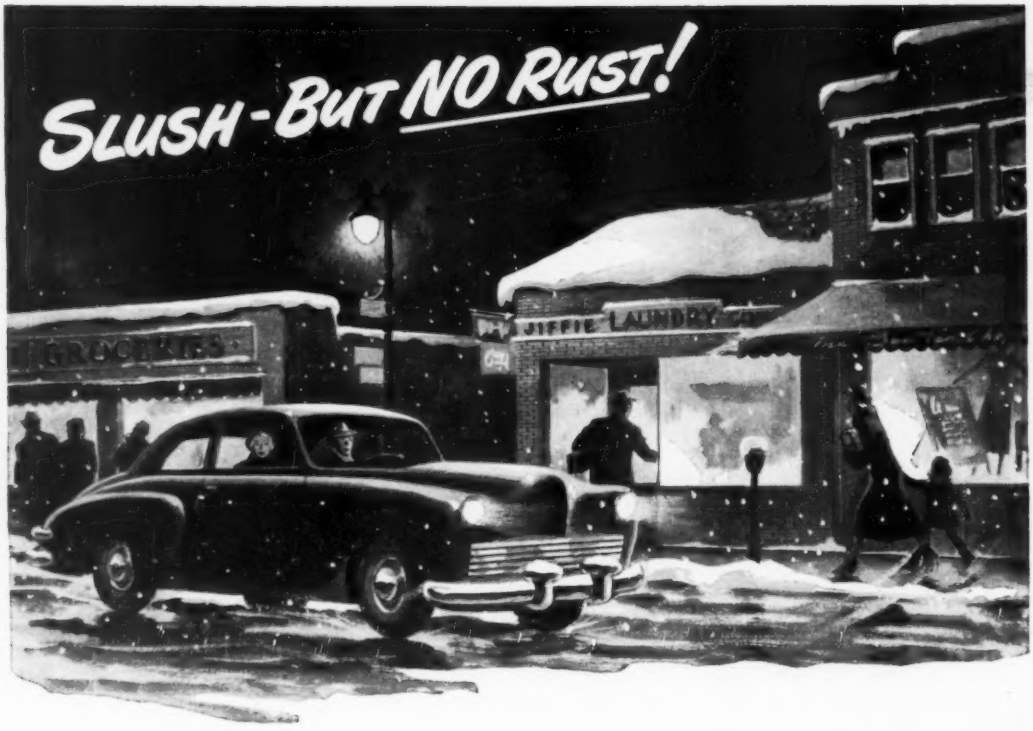
PROTECTION for two 4000 hp motors is provided by outdoor metal-clad switchgear with *Ruptair* magnetic air circuit breakers rated 100,000 kva interrupting capacity.



A-C ALLIS-CHALMERS

ALLIS-CHALMERS

Builders of the World's Widest Range of Public Works Equipment



When snow, sleet and freezing rains hit your city, your first consideration is to keep traffic moving safely and maintenance of ice-free streets with salt, calcium chloride, or mixtures of these with abrasives, results in rust-forming slush. Your tax-paying motorists wail over their rusted car bodies, and you are concerned with the damage to gratings, bridges and other steel construction in street and highway systems.

Now, as more than 50 communities proved to their own satisfaction last winter, there is a way to reduce these rust headaches and at the same time keep traffic moving on ice-free streets. It's the BANOX* way!

Banox inhibits the corrosive effects of ANY slush—from pure water up to the most heavily saturated brines. It costs very little—even less than last year, thanks to the greatly increased production—and the saving to taxpayers and officials is measured not only in the pocketbook but on the nerves as well.

For full information, write to Calgon, Inc. Our representative will furnish samples of Banox and steel test strips for you to run your own simple, conclusive tests.

*Registered trade-mark of Calgon, Inc.

BANOX IN BRIEF

- Works in any type of slush.
- One pound treats 100 pounds of salt.
- Protection lasts through later thaws and rains.
- Odorless and harmless to skin, eyes, clothing, plants, trees.
- Can't harm paint, automobile finishes or tires.
- Protects both rusted and freshly exposed metal.
- Costs less than 2¢ per capita per year.

HAGAN
HALL
BUROMIN
CALGON

calgon, inc.

A SUBSIDIARY OF
HAGAN CORPORATION

HAGAN BUILDING
PITTSBURGH 30, PA.

BURN..... *all dry Refuse with* ONE *handling!*

Use the New Westchester Utility & Burning Cart

the PORTABLE INCINERATOR

It's so obvious! ONE man . . . with ONE handling . . . *completely* disposes of dry, burnable refuse quickly, effortlessly . . . ONE MAN collects *paper, leaves, brush, grass cuttings,* etc. . . . drops it into this 40"-high Burning Cart . . . strikes a match . . . in a minute it's gone — no more handling! The ash catcher protects grass. Dead ashes are thrown away or scattered to nourish lawns.

CARTING — 18 cu. ft. Several times wheelbarrow capacity.

BURNING—Welded steel. Built to last—for years!

DUMPING — Perfect balance. All loads easily handled.

SAVES MONEY because it SAVES TIME!

With this incinerator-cart one man does the work of many—in one operation. Cart's 18 cu. ft. capacity saves trips. Perfect balance means bigger, easy-to-handle loads . . . of course, burning-on-the-spot saves loading, trucking, dumping, etc. operations. Result: money saved and a better job done!

SHOW TAXPAYERS YOU'RE ECONOMIZING!

With many Municipal and State budgets tight, now is the time you must economize —and still do the job! The initial cost of these long-lasting Carts will be returned through payroll savings . . . Order now for summer and fall use.

Shipped uncrated, by Railway Express, collect. F.O.B. Yonkers, N.Y. **$69.50** (10% discount in lots of 10)

For detailed description, specifications, write

COUNTY SPECIALTIES

P. O. Box 626, Port Chester, N. Y.

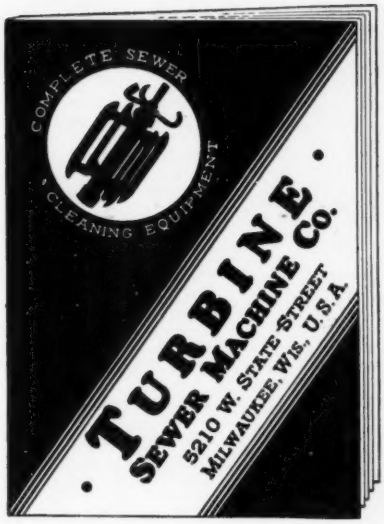
Modernize—Powerize—Economize!

TURCO MAXI-POWER UNIT NO. 2

Models
VF2—Water-Cooled
ZF2—Air-Cooled

7 Power Sewer Cleaning Units *Offered by* TURBINE

Write for this catalog and get Maxi-Power specifications.



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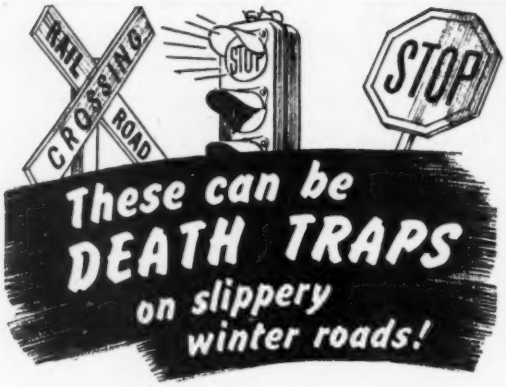
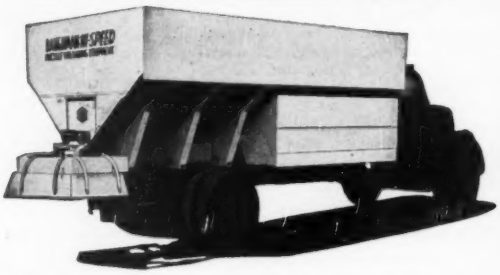


These can be DEATH TRAPS on slippery winter roads!

Get Quick Effective Ice Control with the BAUGHMAN Spreader



FAST ACTION is needed when roads are icy. The Baughman spreads 8 to 30 ft. widths at 25 mph. One man with a Baughman does the job of several crews on ordinary truck bodies. Cuts manpower costs . . . lowers equipment requirements.

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Vacuum clutch control in cab starts and stops drag chain and distributor. Prevents waste — skid-proofs hills and curves to desired lengths . . . spot-spreads at junctions.

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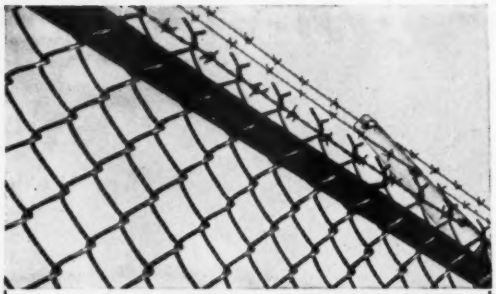

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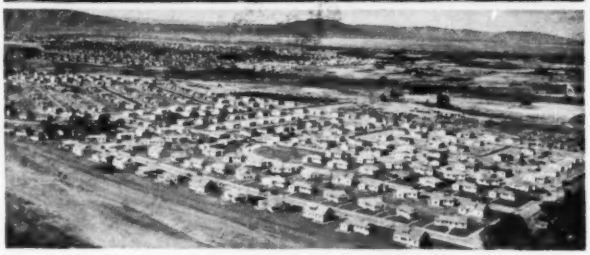

THIS half-billion-dollar Hanford atomic energy plant and Richland, Washington, its operating city of 25,000, constitute the largest peacetime construction project in the history of the United States. Planned and directed by engineers and consultants of Dupont de Nemours and General Electric Companies, both plant and city are sewered and drained *throughout* by Vitrified Clay Pipe. Pipe sizes range all the way from 4" house connections to huge 36" pipe for storm drainage. Photos show the Hanford Engineer Works, its city of operating personnel, and some of the "acres" of Vitrified Clay Pipe used in the project.

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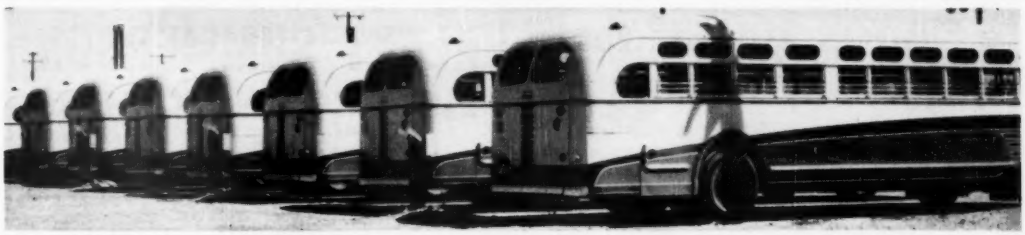

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No heated terminal buildings, and no cold starts. Press the starter, and the engine starts instantly, already warmed up, with full power, ready for the road. Engine wear is reduced; batteries last longer; fuel consumption is decreased.

That's what KIM Hotstart means to this fleet of buses operating in the Pacific Northwest where winter temperatures often range from 10 above to 10 below zero.

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KIM Hotstart is a patented pre-heater for gas or diesel engines. Plugged into the electric circuit at the end of the run, the Hotstart draws cold water from the engine, heats it, forces it back into the engine at another point, keeps the engine warm when not in use.

Made in four sizes, there is a KIM Hotstart for all kinds of motor vehicles—automobiles, trucks, fire engines, tractors, buses, stationary engines, diesel locomotives. Quickly installed by any competent mechanic.

For additional information, fill in and mail the coupon. You will receive descriptive literature, and name of your nearest KIM Hotstart dealer.

KIM HOTSTART MANUFACTURING CO.
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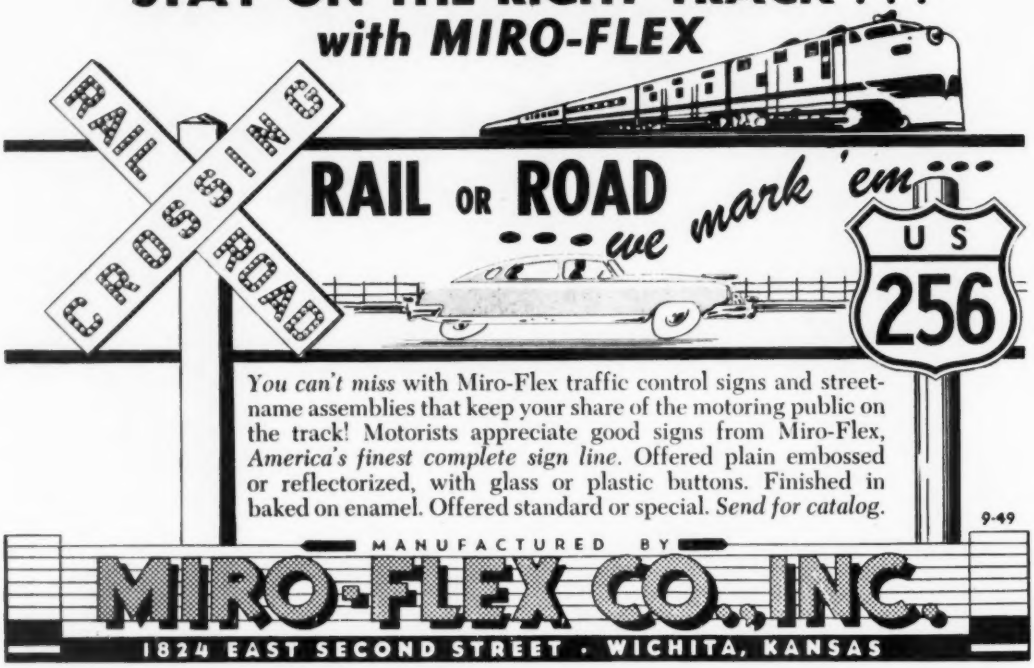

You can't miss with Miro-Flex traffic control signs and street-name assemblies that keep your share of the motoring public on the track! Motorists appreciate good signs from Miro-Flex, *America's finest complete sign line.* Offered plain embossed or reflectorized, with glass or plastic buttons. Finished in baked on enamel. Offered standard or special. *Send for catalog.*

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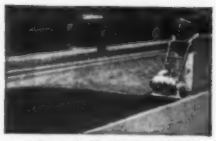
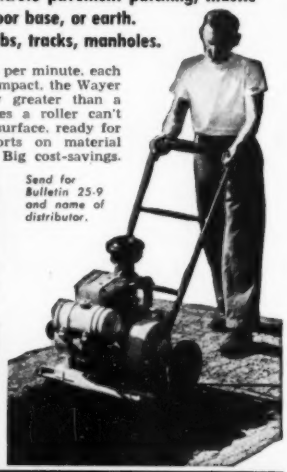


Send for Bulletin 25-9 and name of distributor.



Can work flush to any edge

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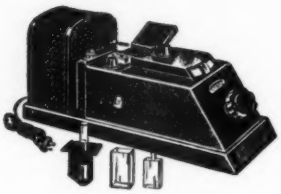

Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

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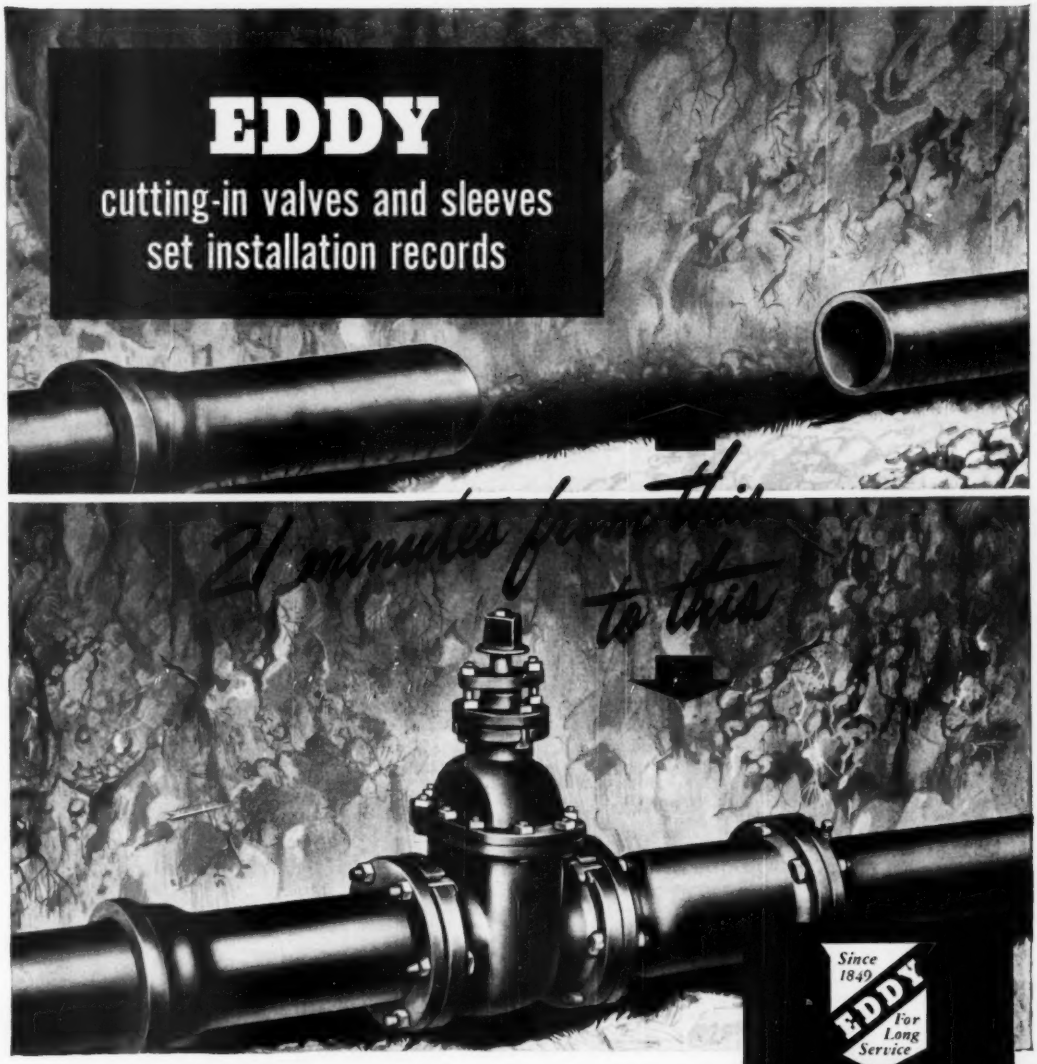
cutting-in valves and sleeves set installation records



Since 1849 EDDY For Long Service

EDDY
VALVE COMPANY
A Subsidiary of James B. Clow & Sons
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★ The National Board of Fire Underwriters recommend spacing valves every 500 to 800 feet on underground water distribution lines. Eddy cutting-in valves and sleeves with their mechanical joints save time . . . make the job easy and simple to perform on existing pipe lines. No caulking experts and no lead-melting equipment are needed. ★ After excavation and following removal of a section from the water main or hydrant stub, two men and a ratchet wrench can complete the job in twenty-one minutes—with all joints "bottle tight" under pressure. Work can be done in any kind of weather . . . in a flooded trench . . . fast and sure should emergency require. ★ Stock up now with Eddy cutting-in valves and sleeves and be ready for speedy, on the spot installations as circumstances may permit. Valves meet AWWA specifications . . . are available in sizes 3 to 12 inches . . . for use on both sand cast and centrifugally cast iron water pipe.

It's A Water Hog

Yes sir! It handles anything from seepage to 15,000 gallons per hour. And it won't clog while pumping solids. Self-priming, of course, and *fast.* Has automatic seepage control, guaranteed 28 ft. suction lift, plenty of discharge pressure, and a built-in gasoline-engine that has the *guts* to keep going without fussing or babying under the toughest working conditions.

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No sir! A Homelite Gasoline-Engine-Driven Pump is the last word in compactness. Fits in a corner of a truck or trunk of car. Requires no crew of men to unload it . . . no special planking to roll it on location. One man picks it up and carries it right to the spot you want it. Write, right now, for our new descriptive bulletin.

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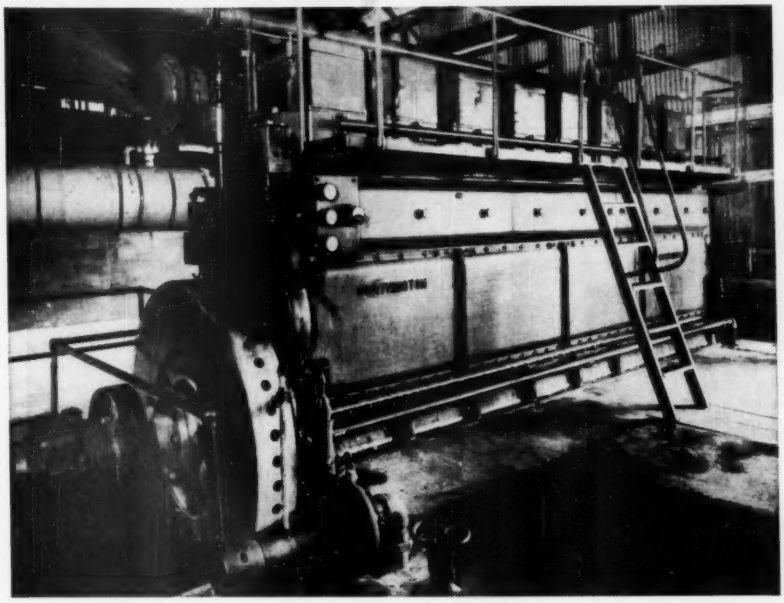
Manufacturers of Homelite Carryable Pumps • Generators • Blowers • Chain Saws



Worthington Gas-Diesel DDPG-8

Gas Diesel Cuts Fuel Costs 50%

The Hunter Station of Acadia Vermillion Rice Irrigating Company, Inc., located at Milton, Louisiana, provides rice growing farmers with water. The pumping capacity of this plant is about 350,000 gpm. The plant consists of two parts with the older part housing the steam engines.

Three Worthington Diesel engines, connected directly with 48 in. MA-1, Mix-Flo centrifugal pumps, were installed in the modern part of this plant. The first, a DD-8, was installed in 1939 . . . the second (same type) in 1942 . . . a gas Diesel DDPG-8 was put in operation in 1948.

Mr. J. W. Embry is in charge of field operations at this station. He states that he is very well satisfied with the performance of these Worthington Diesels.

According to some figures he worked up on a 24 hour schedule for fuel consumption cost per unit, Mr. Embry made this comparison:

"Steam engine No. 6 at 76 rpm in 24 hours pumps 86,400,000 gallons at a cost of $62.10 gas fuel.

"The gas Diesel at 325 rpm in 24 hours pumps 96,408,000 gallons at an approximate cost of $30.00 gas fuel plus about 4% Diesel fuel."

Worthington Helps in Los Angeles $41,000,000 Hyperion Project

The $41,000,000 sewage disposal project now under construction to give Los Angeles one of the country's most modern sewage treatment systems, will include nine Worthington 1688 hp dual-fuel 8-cylinder engines, to be installed in the power and blower building.

Five of these engines will drive Electric Machinery Co. generators rated at 1189 kw to supply the power for the operation of the sewage treatment plant including motor-driven auxiliary equipment. The engines and generators will be direct-connected and will operate at 360 rpm.

The four remaining engines will drive centrifugal compressors used for supplying air to the aeration tanks. Each compressor is rated at 40,800 cfm of air from an inlet pressure of minus 3 in. of water to a discharge pressure of 7.75 psi. The centrifugal compressors will be driven by the 360 rpm engines through step-up gears to a compressor speed of 3400 rpm.

The exhaust and jacket water heat from all nine engines will be recovered and used to heat the sludge digesters.

Three Worthington 30" x 12" type DC horizontal duplex vacuum pumps will be installed in the filter and dryer building. These vacuum pumps are to produce the vacuum in the vacuum filters, for sludge filtration, and each will have a capacity of 4705 cfm and will be driven by 150 hp 240 rpm engine-type synchronous motor.

9-26

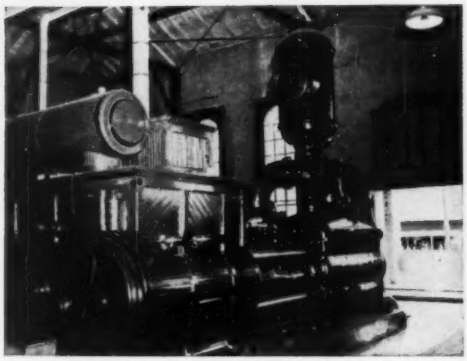
NEWS

FROM THE PUBLIC WORKS FRONT

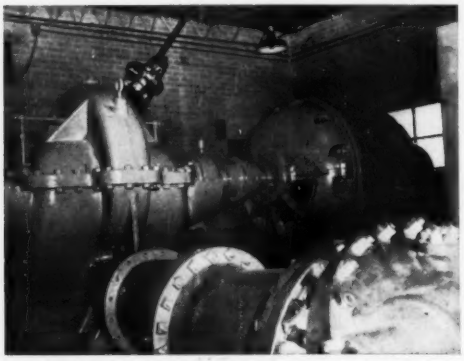
AS REPORTED BY THE DEVELOPMENT ENGINEERS, FIELD SERVICE REPRESENTATIVES AND CUSTOMERS OF WORTHINGTON

WORTHINGTON PUMP AND MACHINERY CORPORATION, HARRISON, N. J.

NEWS from the public works front



Pump installed by a company incorporated by Worthington for Galveston, Texas.



Worthington 20 LA-3 pump and 800 hp G. E. motor at the Fairwood Pump Station in Galveston, Texas.

After 61 Years, Still in Good Condition

In 1888, the City of Galveston, Texas installed 2 modern horizontal compound Duplex Double Acting Pumps in a new pumping station. The pumps were manufactured by a company incorporated into Worthington in 1916.

The large pump is reported to have been rated at 4,000,000 gallons per day at 28 strokes per minute at 60 lb pressure. On Sept. 8, 1900, the City of Galveston suffered a devastating hurricane which resulted in the complete wreckage of the City's main Pumping Plant. Following the storm, the main Pumping Station was rebuilt and the largest of these two pumps was placed in primary distribution pumping service. This pump carried the main load until 1912 when another horizontal steam unit was installed to supplement it. In 1923, it was placed in a standby condition.

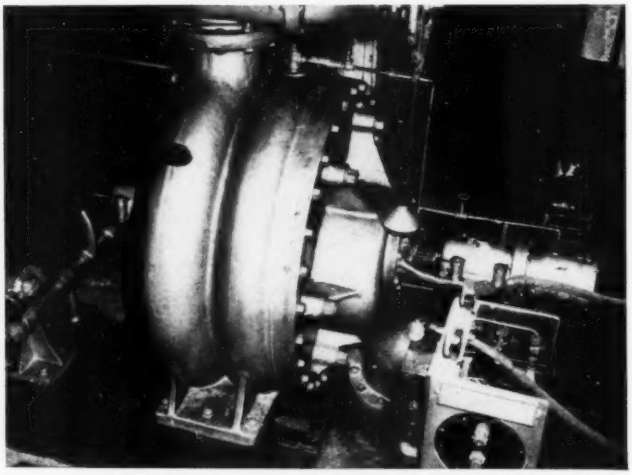
Galveston has now added a 20 LA-3 Worthington Centrifugal driven by 800 hp G.E. Synchronous motor to meet the needs of its growing population.

No Repairs in 37 Years

A Worthington two-stage centrifugal pump that went into operation in 1912 at the Oswegatchie Pumping Station, Ogdensburg, N. Y., has been operating almost continually ever since without one single repair being made on it.

The pump, which is driven from a shaft operated by water power, can pump five million gallons in 24 hours against a 50 foot head, and is idle only when low water or ice conditions prevail. A friction clutch permits disengaging the pump from the drive.

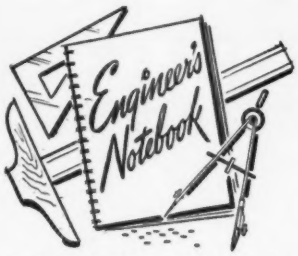
The average daily consumption is 2,500,000 to 3,500,000 gallons.



Worthington 2-stage centrifugal pump at Ogdensburg, N. Y.

Worthington Pump and Machinery Corporation
Harrison, N. J.

NEWS



How Helpful to Centrifugal Pump Users Are the H. I. Specific Speed Limit Charts?

In the United States the basic definition of "specific speed" is the speed in revolutions per minute at which a theoretical and geometrically similar pump would have to run if proportioned to deliver 1 gpm against 1 foot total head at its best efficiency. *It is therefore an index of the pump type using the capacity and head obtained at the maximum efficiency point.*

The specific speed of a pump should be considered as a type number rather than the actual rotative speed of a 1 gpm 1 foot total head model pump, because in most cases such a model pump, if made, would be too small to be hydraulically similar.

The formula for determining specific speed is

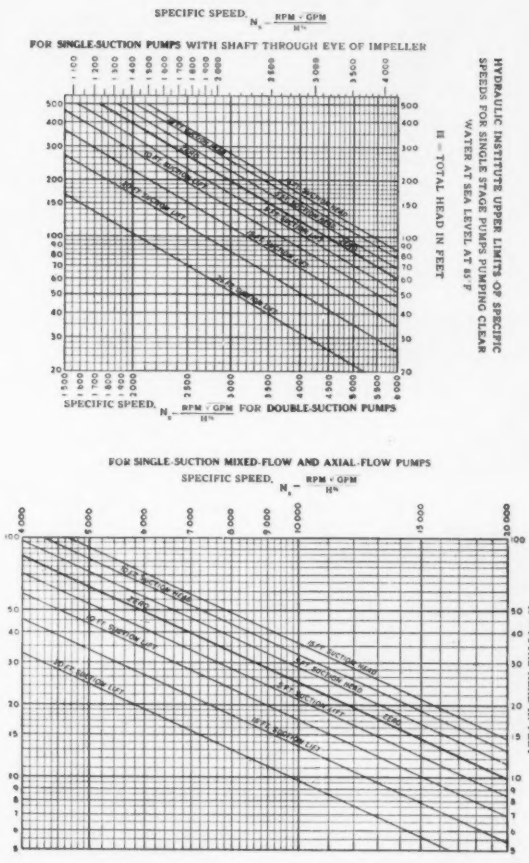
$$N_s = \frac{n \quad Q}{H^{3/4}}$$

where N_s = specific speed
Q = gpm at speed N and head H
n = rotative speed in rpm
H = total head per stage in feet

The normal range in specific speed encountered in single suction impeller designs is from 500 to 15,000 and 700 to 6,000 in double suction impeller designs. Basically, the lower the specific speed type, the higher the head per stage that can be developed by the pump.

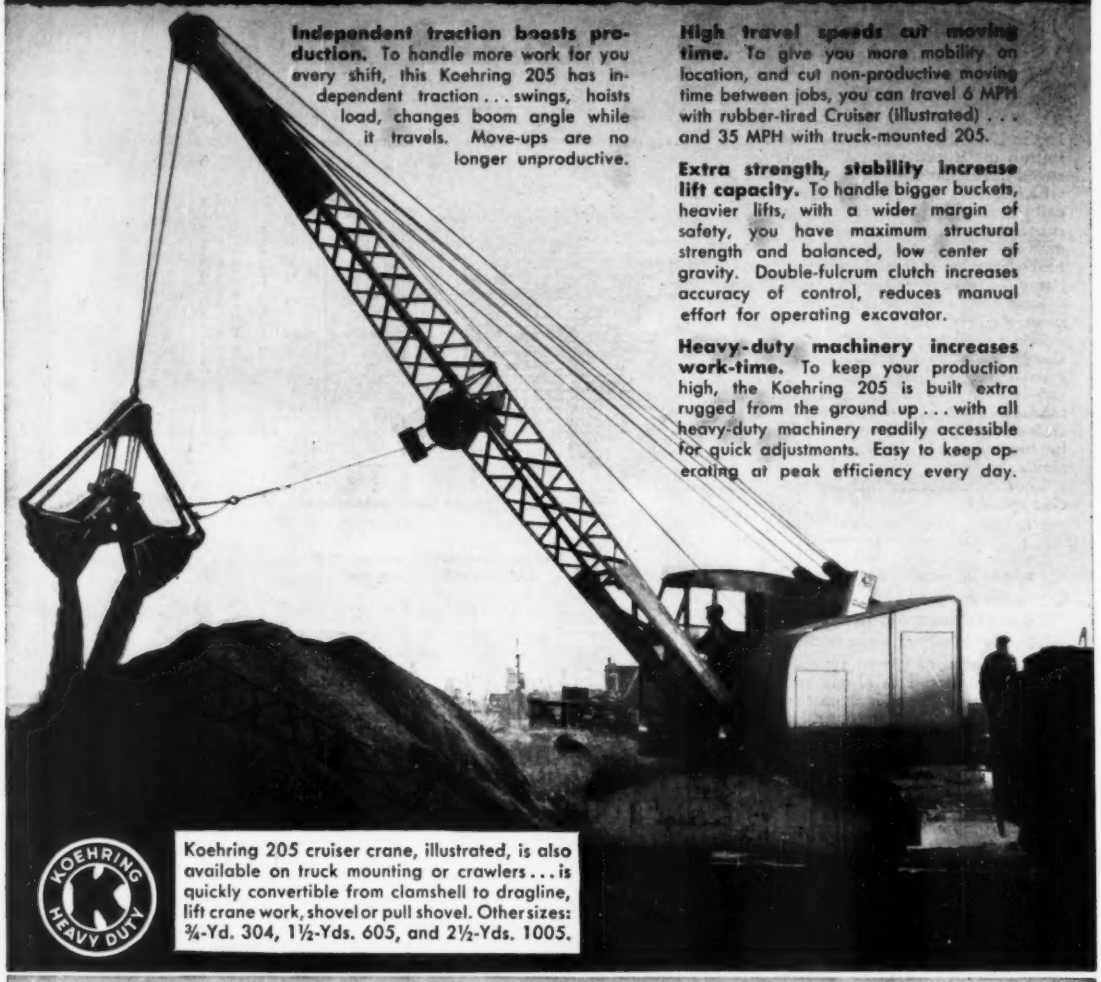
For a given total head and suction lift condition, it has been found from experience that the specific speed of a pump should be below a certain value for successful operation. The Hydraulic Institute has issued a series of charts, the so-called Specific Speed Limit Charts, each applying to a given type of centrifugal pump, showing the maximum recommended specific speed for a combination of total head and suction conditions. It must be realized in using these charts that pumps built for the limit allowed are not necessarily the best design for the intended service. It also must be realized that the individual pump design limits its application for both maximum head and for suction condition limitations. For example, for the 200 feet total head and 15 feet suction lift, the maximum recommended specific speed for a double-suction single-stage pump is 2130. It does not follow that all double-suction single-stage pumps of 2130 specific speed type are suitable for operation at speeds which will cause them to develop 200 ft total head (at maximum efficiency) . . . nor that the pump, if suitable for operation at 200 ft total head, is suitable for operation with 15 ft suction lift . . . nor that a pump of this type operating against 200 ft total head would on test only be found capable of operating on 15 ft maximum suction lift. These Charts are intended to indicate only the maximum rotative speed for which a centrifugal pump can be designed, according to the latest experience at the time it was made, with assurance of a reasonable and proper operation for the combination of operating conditions.

There are some records of successful application of centrifugal pumps exceeding the Limit Charts. As more data is obtained on such installations, it may be found that the present limits are too conservative. The policy of the various pump manufacturers of offering pumps that are within the Hydraulic Institute recommendations gives purchasers assurance that a trouble-free application should result.


SPECIFIC SPEED, $N_s = \frac{RPM \times GPM}{H^{3/4}}$
FOR SINGLE-SUCTION PUMPS WITH SHAFT THROUGH EYE OF IMPELLER
H — TOTAL HEAD IN FEET
HYDRAULIC INSTITUTE UPPER LIMITS OF SPECIFIC SPEEDS FOR SINGLE STAGE PUMPS PUMPING CLEAR WATER AT SEA LEVEL AT 85° F
SPECIFIC SPEED, $N_s = \frac{RPM \times GPM}{H^{3/4}}$ FOR DOUBLE-SUCTION PUMPS
FOR SINGLE-SUCTION MIXED-FLOW AND AXIAL-FLOW PUMPS
SPECIFIC SPEED, $N_s = \frac{RPM \times GPM}{H^{3/4}}$
H — TOTAL HEAD IN FEET

KOEHRING 205

½-YD. FAST-working... highly MOBILE



Independent traction boosts production. To handle more work for you every shift, this Koehring 205 has independent traction . . . swings, hoists load, changes boom angle while it travels. Move-ups are no longer unproductive.

High travel speeds cut moving time. To give you more mobility on location, and cut non-productive moving time between jobs, you can travel 6 MPH with rubber-tired Cruiser (illustrated) . . . and 35 MPH with truck-mounted 205.

Extra strength, stability increase lift capacity. To handle bigger buckets, heavier lifts, with a wider margin of safety, you have maximum structural strength and balanced, low center of gravity. Double-fulcrum clutch increases accuracy of control, reduces manual effort for operating excavator.

Heavy-duty machinery increases work-time. To keep your production high, the Koehring 205 is built extra rugged from the ground up . . . with all heavy-duty machinery readily accessible for quick adjustments. Easy to keep operating at peak efficiency every day.

Koehring 205 cruiser crane, illustrated, is also available on truck mounting or crawlers . . . is quickly convertible from clamshell to dragline, lift crane work, shovel or pull shovel. Other sizes: ¾-Yd. 304, 1½-Yds. 605, and 2½-Yds. 1005.

GET COMPLETE INFORMATION FROM YOUR KOEHRING DISTRIBUTOR

KOEHRING COMPANY

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Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

*Trademark Reg. U. S. Pat. Off. CK821e

EXCAVATORS • DUMPTORS* • PAVERS • FINISHERS • MUD-JACKS* • MIXERS

Handy-KWIK-MIX *bituminous* MIXERS SET UP ANYWHERE

Here is a versatile, fast-batching bituminous mixer that fits any production problem. For loading trucks, handy tower attachment (illustrated) gives you extra high lift of 7'-9" or 8'-9", depending on model. Skip is power-operated . . . discharge at top is completely automatic. For quick portability, track folds back, legs telescope for ample travel clearance. Mixer can also be quickly mounted on raised platform for overhead batching. Or, for scattered patchwork, mobile, rubber-tired unit rolls anywhere. Its 7-second end-discharge, and non-tilting drum are ideal for direct pouring or for loading wheelbarrows. Available in 2 sizes: 10 and 14 cu. ft. For complete information see your Kwik-Mix distributor, or write for new illustrated catalog.

KWIK-MIX COMPANY
PORT WASHINGTON, WIS.
Koehring Subsidiary

Manufacturers of concrete, bituminous, plaster mortar mixers.

Rugged...250 *Trenchliner** SPEEDS CITY TRENCHING

With this heavy-duty Parsons 250 Trenchliner, you get plenty of flexibility to meet the special problems of city trenching. Efficiently trenches close to trees, poles, curbs, in narrow alleys, because digging boom shifts to either side . . . cuts within 12" of obstructions. Telescopic boom is easily changed for depth . . . digs over and under crosspipes . . . saves costly hand trimming. Digs up to 12½' deep . . . 16" to 42" wide. Arc-type conveyor discharges spoil on either side of machine. All operations are reversible. Maneuvers like a crawler tractor . . . turns completely around in its own length. Ask your Parsons distributor how it can save time, labor and costs for you . . . or write for bulletin. 4 other Trenchliner sizes are available.

*Trademark Reg. U. S. Pat. Off.

PARSONS COMPANY
NEWTON, IOWA
Koehring Subsidiary

Manufacturers of wheel and ladder-type Trenchliners

COMPARE O. S. C. SEPTIC TANK CLEANING

WITH OLD FASHIONED, UNSANITARY METHODS

When a Sanitary Service Operator puts a new Gorman-Rupp Odorless Sanitary Cleaner on the job these are the results:—

1. A disagreeable job becomes pleasant, easy work.
2. Unsanitary methods and unhealthy conditions eliminated. Septic tank cleaning with an O. S. C. unit complies with or exceeds health regulations and requirements. It banishes open tanks, diaphragm hand pumps, shovels and other makeshift equipment.
3. It does each job more thoroughly, in a fraction of the time previously required. For example, 500 gal. tanks are cleaned in 15 minutes, 1000 gal. tanks in 20 minutes.
4. It offers operators profit possibilities far in excess of income with present equipment and methods.
5. An O. S. C. unit has other profitable uses such as transporting water, emergency fire fighting, sprinkling, dewatering, etc.

Show this to Sanitary Service Operators in your community. For complete information write for Bulletin 7-ST-11.

GORMAN-RUPP'S NEW "MIDGET" 1½" PUMP

FASTEST, self-priming, most efficient pump for general use. Weighs but 62 lbs. -- pumps 5500 GPH -- self-primes up to 30 ft. -- non-clogging, sturdy. Gorman-Rupp builds a complete line of pumps from the "HANDY", delivering 8 GPM, to large capacity pumps which deliver as high as 125,000 GPH.

THE GORMAN-RUPP COMPANY
343 N. BOWMAN ST. MANSFIELD, OHIO

Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind.
Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....

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4 days' work now done in 3

JAEGER MODEL 125 *obsoletes the 105*

Runs 2 heavy or 3 medium breakers at full 90 lbs. pressure instead of 70, increases production 30% to 40% with the same men and tools.

All new Jaeger sizes—75 to 600 ft.—give comparable work increases.

See your Jaeger distributor or ask for Catalog JC-8

The JAEGER MACHINE CO.
Columbus 16, Ohio

Sales, Rentals and Service in 130 Cities of United States and Canada

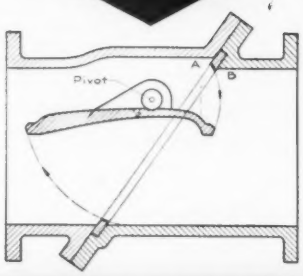
PUMPS • MIXERS • HOISTS
PAVING EQUIPMENT

MAINTENANCE COSTS ARE LOWER

when you have *CUSHIONED CLOSING*

of—CHAPMAN CHECK VALVES

TILTING DISC



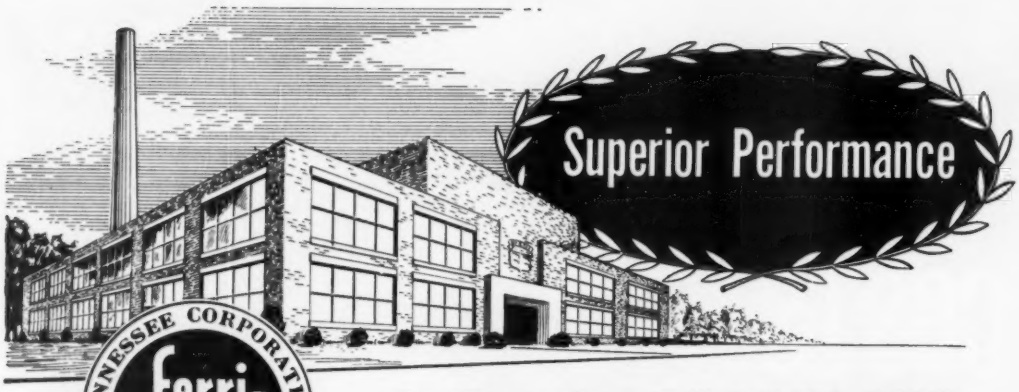
Cross-section of the Chapman Tilting Disc Check Valve illustrating the way that the balanced disc is supported on the pivot, with arrows showing the travel of the disc. A feature of the design is that the disc seat lifts away from the body seat when opening, and drops into contact when closing, with no sliding or wearing of the seats.

That's right! Maintenance costs *are lower* with Chapman Check Valves . . lower because the balanced disc works *with the stream.* There's no slamming to cause destructive pipe line stresses and increase maintenance costs. Nor is there any rubbing on seats . . . the disc closes quickly and quietly with no sliding or wearing action.

Yet that's only half the story. Head losses are actually 65% to 80% lower than for conventional type check valves. And, when used on pump discharge lines, substantial power savings are possible.

Why not write today for engineering data and reports of tests.

THE CHAPMAN VALVE MFG. COMPANY
INDIAN ORCHARD, MASSACHUSETTS



Superior Performance

TENNESSEE CORPORATION
Ferri-Floc
FERRIC SULPHATE
Atlanta, Georgia

...of a Superior COAGULANT

SEVEN ADVANTAGES OF FERRI-FLOC

1. Coagulation is effective over a much wider pH range than with other coagulants. Color flocs may be formed in the very acid range where other coagulants may not be employed. On the other hand, true hydrated ferric oxide flocs may be formed at pH 9-10 or even higher for the removal of turpidity and manganese.
2. The time required for floc formation, conditioning and settling is in many cases considerably shorter than that required for other coagulants.
3. Filter runs have been markedly increased in several cases.
4. Manganese is successfully removed at pH values above 9.
5. Effluents may be produced which are exceedingly low in both iron and aluminum.
6. Hydrogen Sulphide is removed and taste and odors improved.
7. Ferri-Floc does not seem to stick to sand grain to form mud balls, and is subject to less "breaking through" on the filters.

Let us send you FREE, this valuable booklet on Ferri-Floc.
Write TENNESSEE CORPORATION,
Grant Bldg., Atlanta, Ga.

Many of the country's larger plants are now recognizing the advantages offered by Ferric Coagulants and are taking advantage of them through Ferri-Floc. — Ferri-Floc eliminates the troubles encountered with other coagulants by improving general quality, reducing overall cost. — All of this is accomplished without costly changes in plant equipment.

TENNESSEE TC CORPORATION
Atlanta, Georgia — Lockland, Ohio

WORTHINGTON-GAMON

LIQUID METERS

All Sizes All Types

Worthington-Gamon Meter Co.
Subsidiary
WORTHINGTON PUMP & MACHINERY CORP.
296 South Street Newark 5, New Jersey

FILTER SAND AND GRAVEL

Produced from an inland pit hence free from river contamination and foreign matter.

Shipment in bulk or bagged.

Many of the larger filter plants throughout the United States are equipped with our products.

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Inquiries and orders solicited

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Save...

PROMPT SHIPMENT

Time, Money and Labor in making pipe joints

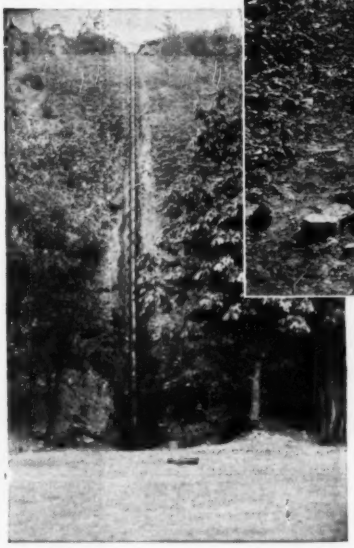
. . . The only field equipment necessary to make a Universal Cast Iron Pipe Bolted Joint is a Ratchet Wrench.

by using

UNIVERSAL*
CAST IRON PIPE

(PIPE and JOINT are ONE)

*Reg. U. S. Pat. Off.



Above All straight lengths of Universal pipe in this curve.

At left 16" pipe laid on a 45-degree slope. Note deflection at top to level ground without fittings.

Outstanding Advantages:

(1) *No calking or pouring of lead or lead substitutes. No gaskets used.*

(2) No bell holes to dig. Can be laid in a narrow trench. Cost of wide trenching is eliminated.

(3) *Can be laid with SPEED. Easier and cheaper to install because only two bolts need to be inserted in the lugs, tightened with a ratchet wrench (the only tool needed), and the completed joint is made in a few minutes. Experienced workmen are not needed.*

(4) Nothing to deteriorate; nothing to work loose; no leakage; no maintenance cost.

(5) Flexibility: Universal pipe is very flexible. It withstands expansion, contraction, unequal settlement, vibration and shock, and electrolysis. Many curves are laid with straight lengths and do not need special fittings.

(6) *Universal pipe can be laid on rocky soil, under water and in sub-zero weather.*

Specify UNIVERSAL PIPE
for water mains and sewers

Furnished in hot tar dipped, cement lined, and enameline lining.

THE CENTRAL FOUNDRY CO.
386 FOURTH AVENUE, NEW YORK 16

USE THE COUPON

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THE CENTRAL FOUNDRY COMPANY
386 Fourth Avenue, New York 16, N. Y.

I am interested in SAVING LABOR, TIME, MONEY and EQUIPMENT in pipe laying. Send me the UNIVERSAL catalog.

Name .....

Position .....

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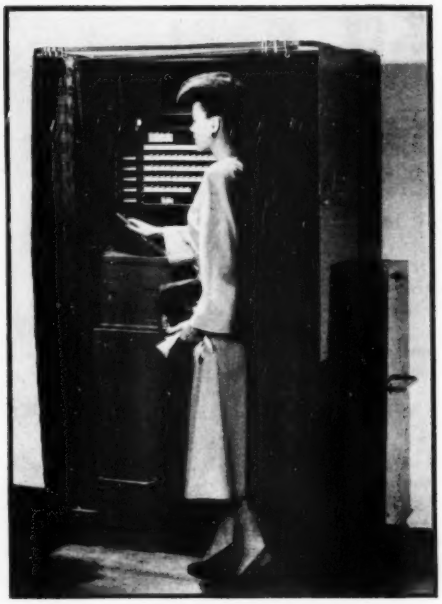
LOOK *at Your Election System*

IS IT EFFICIENT
IS IT FRAUD PROOF
IS IT ECONOMICAL ?

If your City is one of the 5,000 Communities using AUTOMATIC VOTING MACHINES, the answer to these questions is likely to be YES.

If your Community still employs old fashioned paper ballots, the answers are likely to be NO.

Let us show you how AUTOMATIC VOTING MACHINES can give your voters a quick, easy and secret method of balloting; no spoiled ballots; an immediate, honest count of their votes and, at the same time, REDUCE ELECTION COSTS.



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Automatic Voting Machine Corporation

JAMESTOWN, NEW YORK

— *Since 1898* —

The Heiloader hydraulically-operated truck tailgate handles a capacity load of 2000 lbs. Use it to save time and money.

Heil Bodies and Hoists assure less downtime..because

(1) HEIL Bodies use both cross members and long members of the subframe for support, giving you extra strength and longer life

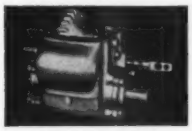
(2) HEIL Hydraulic Hoists are so reliable that you never have to replace a piston due to wear

More days on the job, lower maintenance and repair expense mean *lower hauling costs* with Heil Bodies and Hoists. These money-saving dump units are built to stand up under heavy punishment — to stay on the job and get results. For full information on Heil Bodies and Hoists send in the coupon below, today.

BH-141A

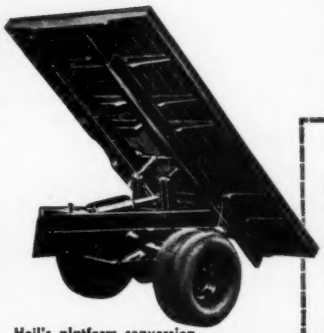
Heil's standard contractors' body has V-section side braces that prevent tailgate spreading.

Heil's heavy-duty rock body for off-the-highway operations. 70° dumping angle gives fast, clean discharge.



There's a sturdy Heil Power Take-off for every make of truck transmission.

Only two wearing parts in a Heil oil-gear pump —and they are reversible and easily replaced.



Heil's platform conversion hoists convert any fixed-bed truck into a time-saving dump unit.

THE HEIL CO.

Factories: Milwaukee — Hillside, N. J.
District Offices: Hillside, Washington, D. C., Atlanta, Milwaukee, Detroit, Chicago, Minneapolis, Kansas City, Dallas, Los Angeles, Seattle

THE HEIL CO., Dept. 4399, 3043 W. Montana St., Milwaukee 1, Wis.

Please send me bulletins describing the dependable Bodies and Hoists shown in this advertisement.

Name.....Title.....

Company.....

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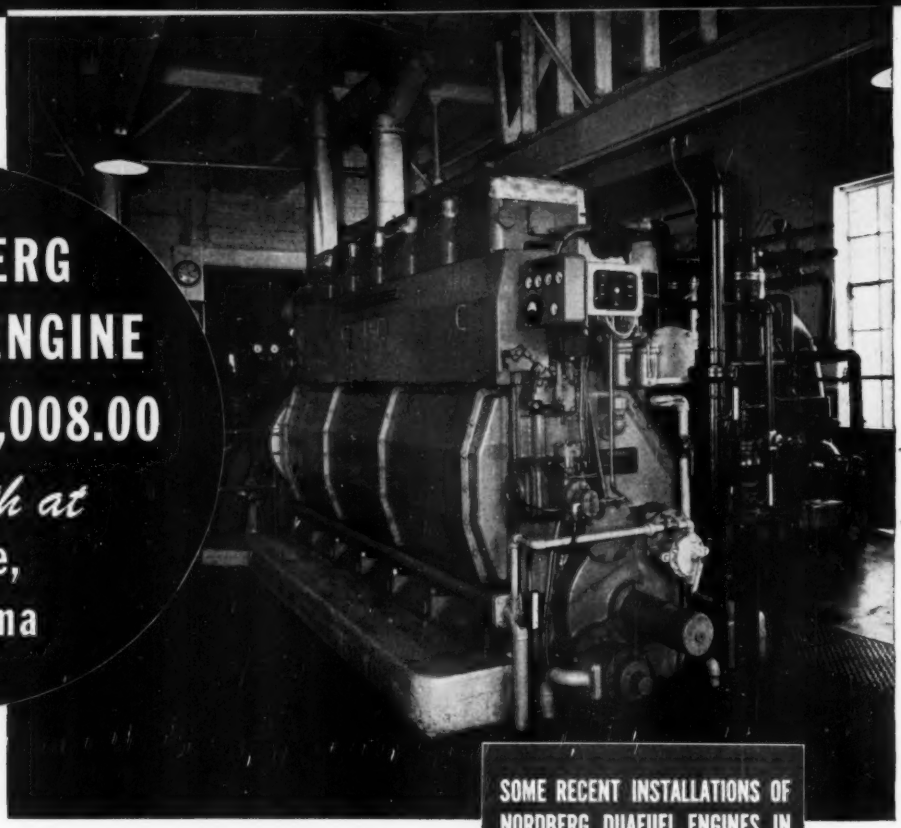
NORDBERG DUAFUEL ENGINE *Saves* $1,008.00 *per month at* Okeene, Oklahoma



MUNICIPAL service at Okeene, Oklahoma, has grown from an annual generation of 640,760 K. W. in 1916 to 2,850,550 K.W. in 1948. Prior to last year's installation of an 840 H. P. supercharged Nordberg Duafuel Diesel engine, all power was generated with oil burning Diesels.

Plant Superintendent Sam Isbill reports that for the month of June, the Nordberg Duafuel Engine, burning gas fuel, saved $1,008.00 in the cost of fuel and lube oil compared with the oil fuel and lube oil cost of the oil burning Diesels. With this performance, the new engine will soon pay for itself in savings.

Speaking of the Nordberg Engine, Mr. Isbill states, "Our Nordberg Duafuel engine is doing a fine job and is showing a big reduction in operating expense."

Here, then, is municipal service that pleases both operating personnel *and* the taxpayers. Why not investigate the merits of Nordberg Diesel power?

SOME RECENT INSTALLATIONS OF NORDBERG DUAFUEL ENGINES IN MUNICIPAL POWER PLANTS

CULPEPER, VA.
DENTON, TEX.
ELKHORN, WIS.
GARLAND, TEX.
GREENVILLE, TEX.
HENDERSON, KY.
MINDEN, LA.
PONCA CITY, OKLA.
ROCHELLE, ILL.
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Nordberg two and four cycle engines are built in a wide range of types and sizes from 10 to 8500 H.P. Write for descriptive bulletin.

NORDBERG MFG. CO., Milwaukee 7, Wisconsin

P949

A DIVISION OF NORDBERG

NORDBERG

DIESEL ENGINES

and now-a PORTABLE *Limitorque*

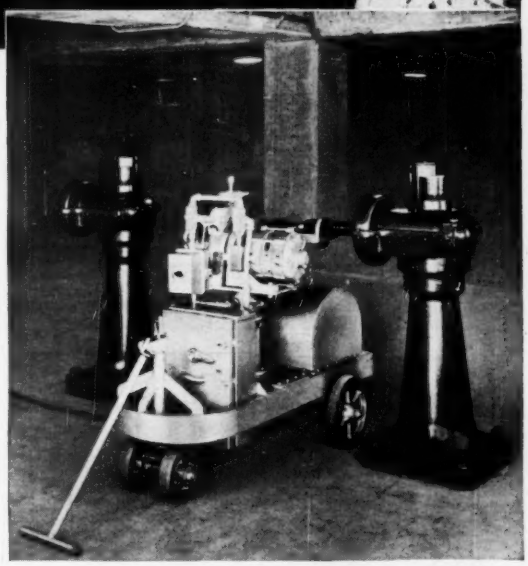
MOTOR-OPERATED
VALVE CONTROL

. . . at South District Filtration Plant, City of CHICAGO

Something new . . . here's the well-known and widely used *"Limitorque"* Motorized Valve Operator, in *Portable form,* adapted for use wherever a hand-drawn truck can be wheeled to a Valve or Sluice Gate location. — It may be quickly connected to a power outlet . . . and automatic *electric opening and closing is readily secured.*

This portable "Limitorque" is equipped with the famous *torque-limiting feature* (which operates in both Opening and Closing directions); *The limit switch* which may be set for any desired travel (automatic re-setting); *A Universal Joint connection* is also provided for compensation of misalignment between floorstand and power unit.

This unique method of electrical valve operation is *another first* for Philadelphia Gear Works. It embodies the salient and proven features that have made *Philadelphia "Limitorque" Valve Operators,* the most widely used in the world.



The *Portable "Limitorque"* shown directly above was built to the exacting specifications of the Filtration Division Engineers, City of Chicago, Ill. The photo at the top of the page shows a general view of the Filtration Plant taken from South Breakwater Light. (All photos courtesy of South District Filtration Plant at Chicago, Ill.).

Send for 96 page "Limitorque" Catalog and please use your Business Letterhead when requesting same.

Philadelphia Gear Works, INC.

ERIE AVE. AND G ST., PHILADELPHIA 34, PA.
NEW YORK • PITTSBURGH • CHICAGO • HOUSTON
IN CANADA: WILLIAM AND J. G. GREEY LIMITED, TORONTO

Industrial Gears and Speed Reducers
LimiTorque Valve Controls

SLASH PIPE INSTALLATION COSTS

SAVINGS UP TO 80% - 85% NOT UNCOMMON

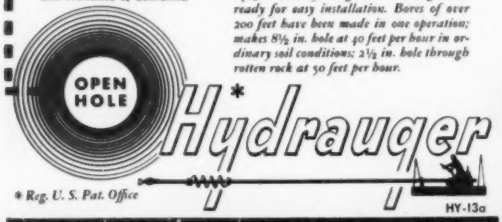
HYDRAUGER operation SAVES TIME and lots of it! With man-hour costs HIGH, it is wise ECONOMY to equip your crews with TIME SLASHING HYDRAUGERS.

The reason for HYDRAUGER ECONOMY is very simple. It bores a clean, open hole, horizontally through all formations; does it without paralyzing traffic, wrecking pavement, lawns, gardens, etc.

Write for Catalog No. 8 TODAY!

HYDRAUGER CORP., Ltd.
681 Market Street
San Francisco 3, California

The powerful air-driven HYDRAUGER machines (3.2 and 5.2 horsepower) bore and ream any size open hole from 2 in. through 14½ in. The Hydrauger bore is straight and ready for easy installation. Bores of over 200 feet have been made in one operation; makes 8½ in. hole at 40 feet per hour in ordinary soil conditions; 2½ in. hole through rotten rock at 50 feet per hour.



* Reg. U. S. Pat. Office

HY-13a

EARTH BORING TOOL

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime, iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

Additional information, recommendations and quotations furnished upon request by

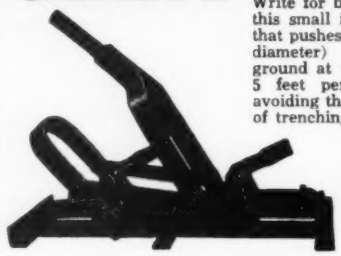
PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. Erie, Pa.
Engineers and Sales Agents

REPRESENTING —

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

GIANT

Reduce Pipe-Laying Costs with a GIANT Pipe Pusher



Write for booklet telling of this small inexpensive tool that pushes pipe (up to 15" diameter) through the ground at the rate of 1 to 5 feet per minute, thus avoiding the heavy expense of trenching.

Address Dept. P

GIANT MFG. CO.
Council Bluffs, Ia.

STREET SIGNS

Mak-A-Sign letter-changing stencils are easy to use, fast, efficient, inexpensive to operate. Makes legible street name on curb, sidewalk, wood or concrete posts, or signboards. *Write for Descriptive Folder and Prices.*

Exclusive territories open for SALESMEN or Distributors now doing business with municipalities. Send full details.

MAK-A-SIGN CO.
P. O. Box 2290, Birmingham, Alabama

MARTIN model 22 TRAILER

ANNOUNCING A VERSATILE NEW TRAILER WITH A CAPACITY OF 5 TO 7 TONS.

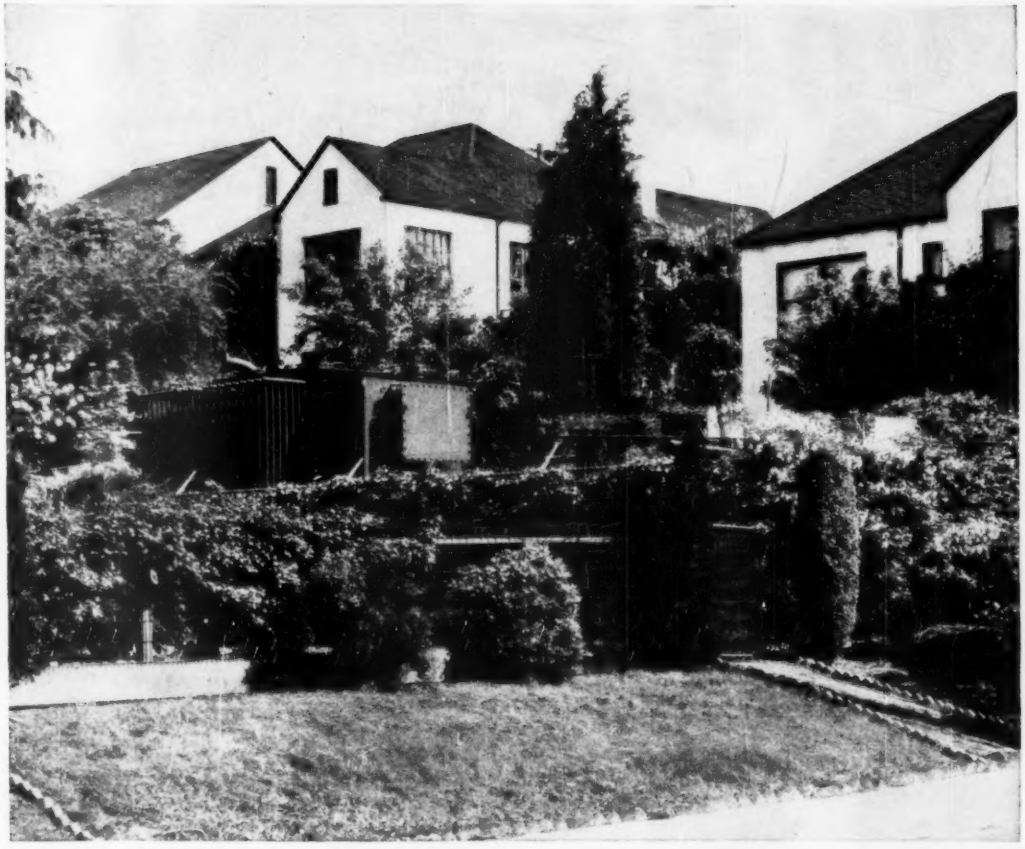
EXTREMELY LOW PLATFORM HEIGHT. Rollers, Track tractors, and bulk material easily loaded and transported.

JOB TESTED ENGINEERING. Rugged construction, ample flotation and adequate safety features typify all models of MARTIN TRAILERS.

There is a MARTIN TRAILER for every hauling job.

At your request let us send you detailed specifications and prices.

MARTIN MACHINE CO. KEWANEE, ILL.



How attractive can a Substation be?

Perhaps your community has been asked to consider the use of electric substations in residential areas.

"Piece-meal" substations would be a detriment. Built up from un-coordinated parts, they are unsightly and space consuming.

General Electric *unit* substations with their smooth, integrated lines can be easily landscaped into the surroundings to overcome appearance objections. At the same time you would be realizing the many benefits—such as lower costs and increased reliability—of G-E power distribution.

We'd like to show you how other communities, working with their local utilities and General Electric engineers, utilized G-E unit substations in their planning. For pictorial examples, ask your G-E sales representative for a copy of "Unit Substations in Metropolitan Areas" (GEA-5155) or write to *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

GENERAL ELECTRIC

221-62

LINCOLN, NEBRASKA

There's good reason for their confidence, because Lincoln, Nebraska is protected by Mathews Modernized Hydrants—and that means safety *plus*.

These great hydrants are the last word in simplicity and serviceability. Water cannot reach the operating thread—no risk of ice jamming it—no risk of deterioration from rust or sediment. The revolving nut is shielded against rain, snow and dust. All working parts are contained in a removable barrel which can be replaced in a jiffy if the hydrant is broken by a truck. And the damaged hydrant cannot leak, because the main valve opens *against* water pressure.

Send for our illustrated folder which tells you the many distinctive features that make Mathews indispensable for every safety-minded community.

OTHER MATHEWS FEATURES: Head can be turned 360° • Replaceable head, nozzle outlets easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, toughness, elasticity • Operating thread only part to be lubricated • Stuffing box cast integral with nozzle section • A modern barrel makes any Mathews good as new

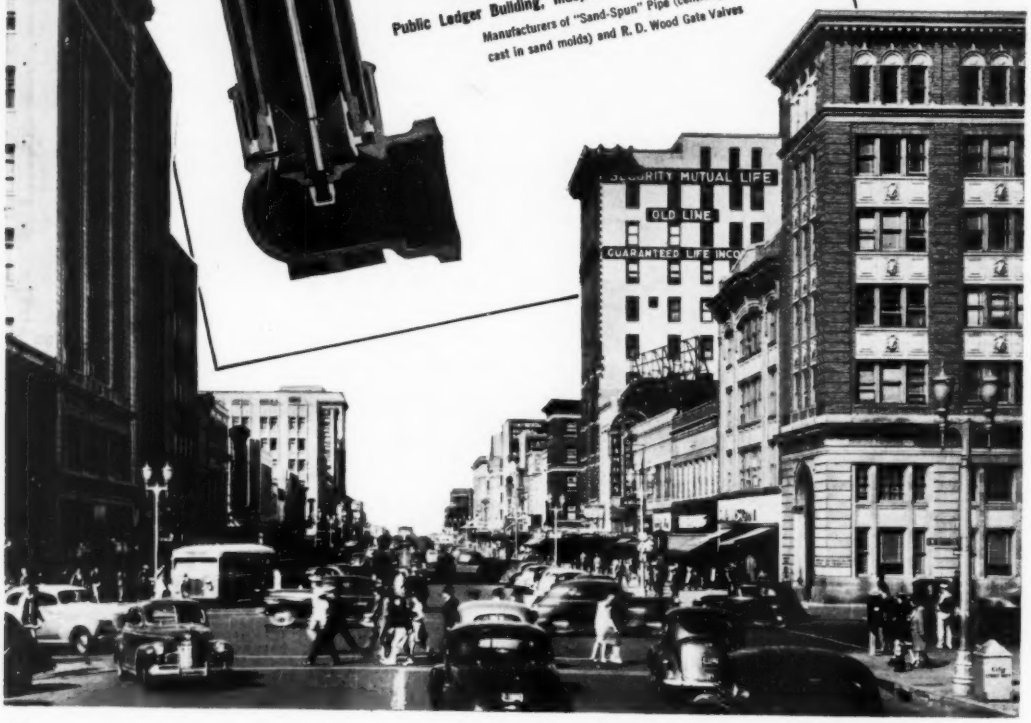
"One of America's Safest Cities"
THE MATHEWS FIREMEN SAY

MATHEWS HYDRANTS

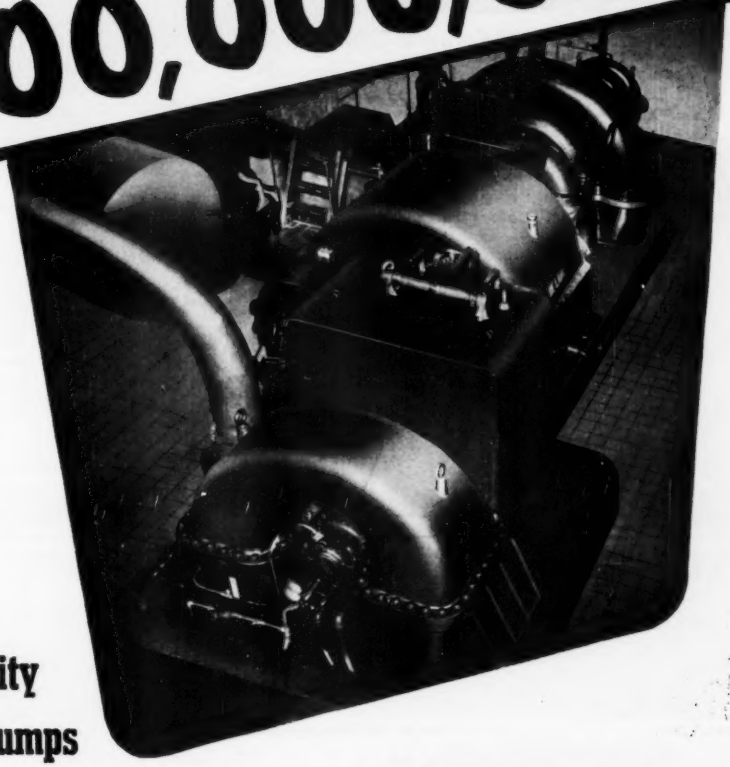
Made by R. D. WOOD COMPANY

Public Ledger Building, Independence Square, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves



1,300,000,000



Total Capacity of De Laval Pumps in the City of Chicago . . . 1,300,000,000 Gallons Daily

In the year 1920, the City of Chicago installed its first turbine-driven centrifugal pump—a unit of 60 mgd capacity in the Central Park Station. The performance, trouble-free operation, economy and flexibility of this unit proved to be so satisfactory that additional De Laval turbine-driven pumps were installed in rapid succession.

Today, the City of Chicago is served by a total of 16 De Laval turbine-driven pumps and 5 De Laval motor-driven pumps having a total capacity of one billion, three hundred million gallons daily.

Send for catalog 10-7-H

DE LAVAL

DE LAVAL STEAM TURBINE CO., TRENTON 2, N. J.

TURBINES • HELICAL GEARS • CENTRIFUGAL BLOWERS AND COMPRESSORS
CENTRIFUGAL PUMPS • WORM GEAR SPEED REDUCERS • IMO OIL PUMPS

WW7

if this wall had ears . . .

. . . it would hear some very nice things about itself!

Available "open face" (above) and "Closed face." Write for: *Bulletin* C-49.

Universal Concrete Cribbing Walls

. . . are praised by both builders and those who foot the bills. They are quickly placed with minimum waste effort—no extensive digging, no footers, no special provision for drainage. Pre-cast units are easily laid up by unskilled labor. Back filling proceeds as the wall rises. Built in any weather, Universal walls can be any height, straight or curved. Last forever yet complete salvage if removed.

Universal
CONCRETE PIPE CO.

GENERAL OFFICES: 997 S. HIGH ST., COLUMBUS 15, OHIO

Decatur, Ala.
Dothan, Ala.
Atlanta, Ga.
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Norristown, Pa.
Pittsburgh, Pa.
Nashville, Tenn.
Clarksburg, W. Va.
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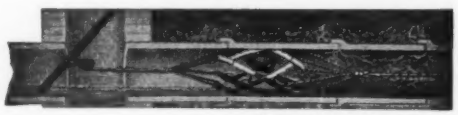
Wheeling, W. Va.

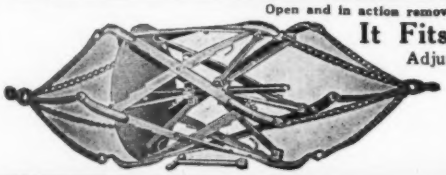
UNIVERSAL CONCRETE PIPE

. . . is manufactured on famous Universal machines, that true-tamp every cubic inch of concrete at the incredible rate of 680 times a minute. The result is dense, strong, uniform pipe that meets or exceeds ASTM specifications. Get the extra quality of Universal pipe—any size, any

EXPANDING ROOT CUTTER & SEWER CLEANER



Open and in action removing roots and caked sediment like this.



It Fits in on Every Sewer Cleaning Job

Adjusted in 30 seconds to fit any sewer from 8 to 30 inches.

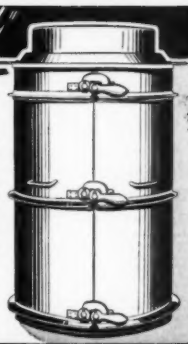
Will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, putting the sewer system in almost 100% clean condition.

Write for our new catalog on complete sewer cleaning equipment.

EXPANDING SEWER MACHINE COMPANY

108 East Walnut St. **Nappanee, Ind.**

THE "Quinn Standard" FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that **Quinn pipe forms** and **Quinn mixing formulas** combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS:

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1623 12TH ST. BOONE, IA

"GUNITE" CONCRETE (Since 1915)

SPECIALISTS IN CEMENT GUN WORK

RESERVOIR LININGS (NEW AND OLD) ● CONCRETE AND MASONRY REPAIRS ● STEEL ENCASEMENT ● FIREPROOFING ● STEEL COAL BUNKER, STACK, HOPPER, AND PLATE LINING ● SEWER LINING AND REPAIRING ● CANAL, DITCH, AND DRAIN LINING.

GUNITE CONCRETE & CONST. CO.

1301 Woodswether Road **Kansas City 6, Missouri**

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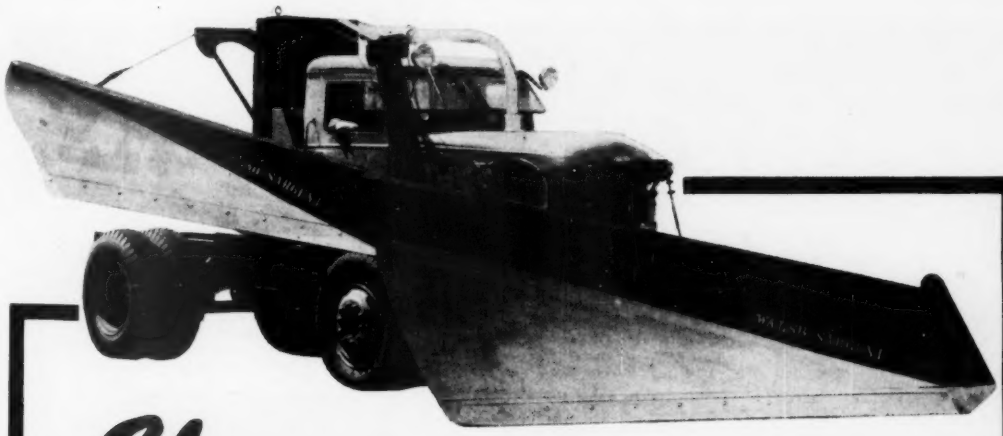
Branch Offices: DENVER ● DALLAS ● NEW ORLEANS

See our catalog in Sweet's

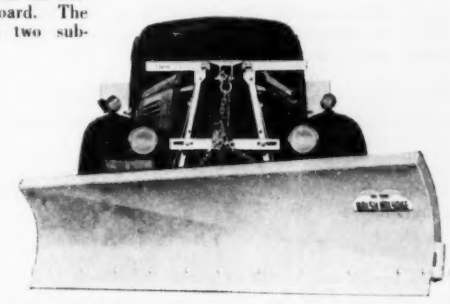


Cleaner SNOWPLOWING IS *"Built-In!"*

Walsh snowplows do a cleaner, more thorough job of snow cleaning because of two features "built-in" to the plow.

1. Two Wear Shoes are set flush with the cutting edge, prolonging its life. These Wear Shoes are made of Adalloy, a chrome molybdenum alloy, which in a recent test lasted thirty times as long as steel.

2. The tripping sub-frame is a unique Walsh-Sargent feature. Every plow has a sub-frame for added strength at the bottom of the moldboard. The Trip-One-Way has two sub-frames, with the bottom hinged to the upper. This allows the plow to jump obstacles without damage, even up to an eight-inch curb. The faster the truck moves, the easier the plow jumps the obstruction. Furthermore, the moldboard can be tilted back for deep plowing or tilted forward for speed patrolling.



Walsh Holyoke has a plow of every type for every purpose, including a reversible heavy duty snowplow as well as the unique Trip-One-Way. Is your city prepared for the snows of the coming winter? Drop us a line and we'll send you detailed literature on complete Walsh-Holyoke and Walsh-Sargent snowplow models.

Dealers: Some territories still available.

WALSH HOLYOKE BOILER WORKS DIVISION

Continental Copper & Steel Industries, Inc.

APPLETON STREET • HOLYOKE • MASSACHUSETTS

BE READY...

...for the Fall leaf problem

AVOID CLOGGED SEWERS AND SLIPPERY PAVEMENT WITH Good Roads MACHINERY LEAF COLLECTOR

If you are ready with a Good Roads Leaf Collector when the leaves begin to fall, you can eliminate the dangerous leaf nuisance efficiently, economically, and quickly.

The two-man-operated Leaf Collector inhales leaves and in the process shreds them into small particles. These chopped leaves are known as "COMPOST," a natural fertilizer which will be begged for by many citizens, for use in their gardens.

This feature is important in cities where there is too great a distance to travel to the dumping site.

FEATURES

FLEXIBLE INTAKE HOSE . . . . . easily maneuverable into driveways, under and around autos, in gutters, around corners and catch-basins and under cross-walks.

RUGGED ROTOR BLOWER ASSEMBLY . . . inhales and pulverizes wet or dry leaves in one operation.

HYDRAULIC SYSTEM . . . . . operates independently . . . makes hook-up and dumping almost instantaneous.

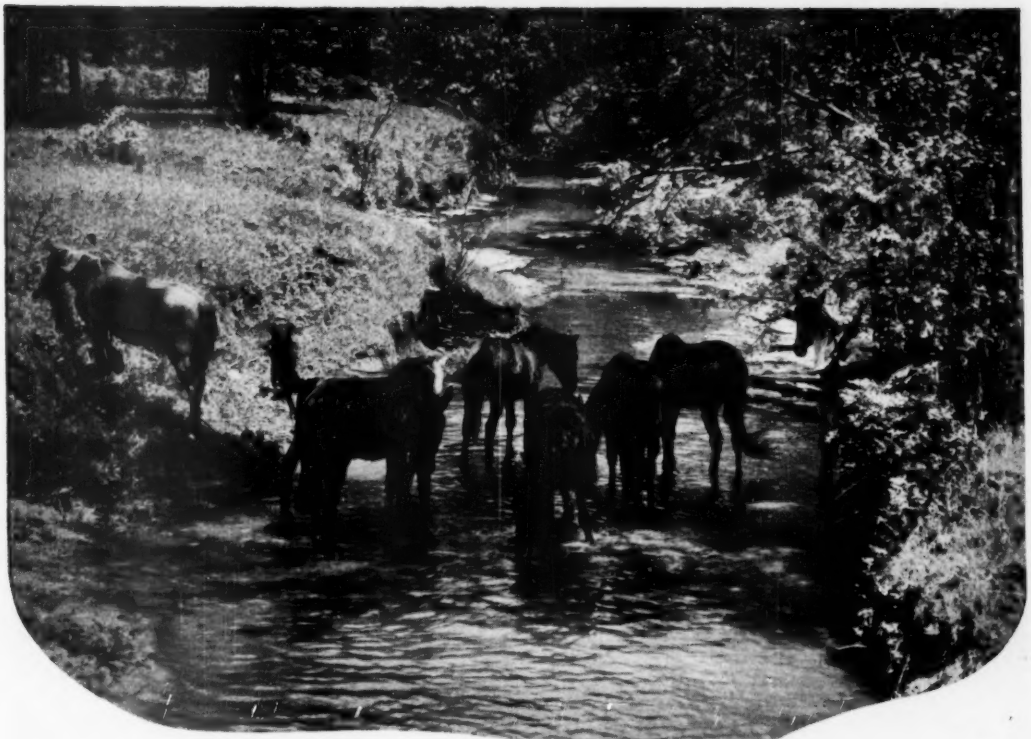
SPACIOUS LITTER CARRIER . . . . . holds blocks and blocks of pulverized leaves and debris.

SPECIAL FILTERS . . . . . keep surrounding air clean and dust-free.

The rubber tired snoot for all purpose leaf collecting (circular illustration) and the simple Hanger Arm unit (top) are standard equipment.

CONTACT YOUR GOOD ROADS DEALER or the factory for further detailed information or a demonstration.

GOOD ROADS MACHINERY CORP. **MINERVA, OHIO**



Make Water Safe...

Specify Solvay Liquid Chlorine!

Here's the difference! The name Solvay is a guarantee—maintained for more than two generations—of purity and performance, uniformity and controlled quality.

—You get quick delivery, too. Solvay Liquid Chlorine is shipped in cylinders, tank cars or ton containers straight to you from three strategically-located plants.

SOLVAY SALES DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

BRANCH SALES OFFICES:
Boston • Charlotte • Chicago • Cincinnati • Cleveland
Detroit • Houston • New Orleans • New York
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For Water Conditioning

SOLVAY
TRADE-MARK REG. U. S. PAT. OFF.

LIQUID CHLORINE
SODA ASH

- Outstanding Uniformity
- Laboratory-Controlled Quality

SAVE 4 WAYS WITH HAZARD ARMORTITE CABLE ON THESE 6 IMPORTANT JOBS:

Lower initial cost. Because Armortite Cable requires no costly lead sheath or metal armor for protection, you make substantial savings on the purchase of cable.

Direct burial. All the necessary protection for direct burial is built into the cable itself. Duct costs are eliminated. Long-lived, moisture-proof Hazard Watertite Submarine insulation safeguards the conductors electrically. Then a double layer of age-resisting, leather-like tape, plastic sealing compound and saturated jute coverings give Armortite its outstanding non-metallic protection against mechanical damage and the other potential enemies to cable buried direct in the soil.

Fast, easy installation. The light weight, and simple construction of this non-metallic underground cable speeds up handling, makes splicing and terminating easier — gives you important installation savings.

Long, trouble-free service. Years and years of experience have proved that you can forget Hazard Armortite Cable, once it's buried. It continues to carry the load day in and day out with none of those costly, annoying service interruptions. Since 1926, Armortite has set records for long, trouble-free underground cable service. And today, it is made with another improvement that will extend this service even longer. Okobestoprene Tape (asbestos fibres compounded with neoprene) is wrapped over the insulated conductors instead of braid. This provides an additional seal against possible wicking-in of moisture at terminals or joints . . . extra resistance to mildew, acids, flame or alkali . . . permanent circuit identification.

For all the details about this cable, ask your Hazard representative or write Hazard Insulated Wire Works, Division of The Okonite Company, Wilkes-Barre, Pa.

HAZARD

6860

insulated wires and cables for every electrical use

TO KEEP CONSTRUCTION COSTS IN LINE...

Modernize with the Allis-Chalmers HD-5

Investigate how the HD-5 can give you more work for your construction dollar. It's the most advanced tractor in its power class...a new smaller tractor with big tractor design, balance and stamina. Cuts costs on all kinds of work with full line of allied equipment!*

JUST THE RIGHT SIZE FOR CITY WORK — 11,250 lbs. of properly balanced weight . . . 40.26 drawbar hp. Powered by the smooth-running, economical, 2-cycle GM Diesel engine — every down stroke is a power stroke!

BIG WORK CAPACITY — Surprises users everywhere with its performance . . . as one owner said, "You've got to see it to believe it." Combines power and ruggedness with unusual traction, balance and maneuverability.

BUILT-IN OPERATOR COMFORT — Has cushioned seat, wide arm rests, convenient controls, full vision, easier steering and shifting. Operator gets more done because it's easier to do more!

SIMPLE TO SERVICE — All adjustments are unusually accessible. Major assemblies are removable without disturbing unrelated parts — engine, clutches, transmission, etc. There's less downtime — more time spent working . . . labor and repair costs are reduced.

NEEDS LESS GREASING THAN AN AUTOMOBILE — Instead of hitting a dozen or more grease fittings every shift, you lubricate only one fitting every two weeks, two other fittings every five weeks (based on 40-hour weeks). What's more — you operate a full 1,000 hours before replenishing lubricant in truck wheels, track idlers and support rollers.

Get all the facts on the up-to-the-minute, fast working HD-5 tractor from your Allis-Chalmers dealer NOW!

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

* A GREAT TRACTOR WITH A GREAT ALLIED LINE

Available with fully matched bulldozers, scrapers, winches, snowplow and the popular Tracto-Shovel with numerous interchangeable attachments that multiply its usefulness.

the "Great Gildersleeve" *

. . . IS BROADMINDED ABOUT READING METERS

Commissioner Gildersleeve tells newly hired Meter Readerettes, "Your job is to make consumers drool . . . so they'll be thirsty . . . so they'll drink more water." He peers at the . . . well, at the efficient Pittsburgh water meter.

The girls eagerly lap up Gildy's instructions as he says, "Accuracy is our watchword and if you can't be accurate at least be on our side." His explanation is quite clear.

As the Commissioner concludes his instructions on the art of meter reading, the girls' interest and enthusiasm know no bounds. They're ready to read 'em and reap for dear old Summerfield.

Seriously—when you read Pittsburgh-Empire meters, you reap the greater revenue that results from in-built accuracy.

Next month brings high adventure with the girls afield—

Four Model 120T 1,000-gallon Triple Combination Ward LaFrance Pumpers, equipped with front suctions. Standing in picture are Trenton Fire Chief Thomas Phelan and John Duffy, Ward LaFrance distributor.

four pumpers for TRENTON

Trenton, N. J., the garden state capitol, recently added these four Ward LaFrance Pumpers to its fire department. Advanced engineering and dependable performance spell greater protection for Trenton whose famous citizen, engineer John Roebling, invented the wire-rope which made possible the Roebling-designed Brooklyn Bridge.

All over America, municipalities like Trenton have come to recognize Ward LaFrance, makers of the world-famous, war-proven M-1 Wrecker. The ease with which Ward LaFrance fire apparatus maneuvers through congested city streets—and over rugged country roads—has made them first choice everywhere. Every pumper offers the reserve horsepower so often needed for quick acceleration and hill climbing, plus a Waterous, famous since 1886, split housing pump . . . surplus gallonage that far exceeds its rated capacity . . . flat horizontal booster tank . . . exceptional hose capacity . . . and beautifully hand-rubbed lacquer paint finish.

WARD LaFRANCE TRUCK CORPORATION

Fire Apparatus Manufacturers for Over 30 Years

It will pay you to investigate Ward LaFrance—choice of the nation's leading cities. Send for bulletins 75-85.

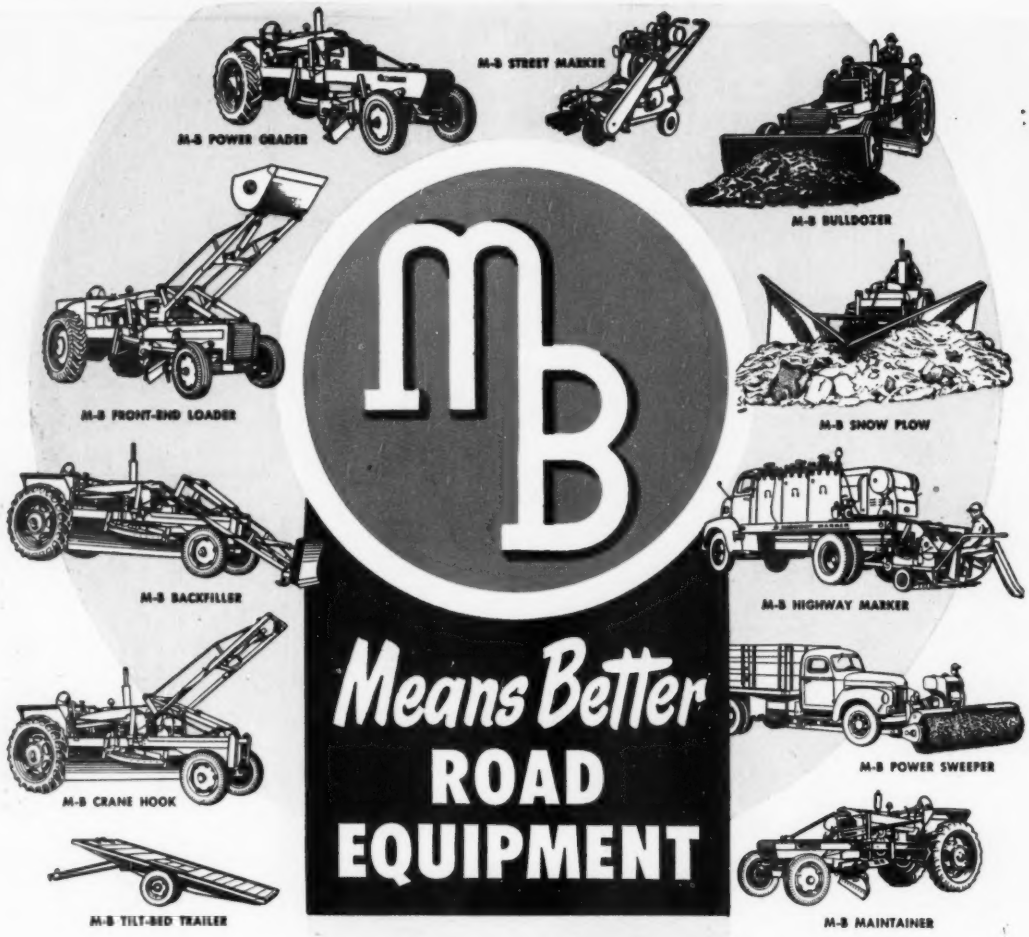
A few choice territories are still open. Write today for information.

Pumpers—Quads—City Service—Hose Wagons—Special Types—Rotary Gear—Single, 2 or 3 Stage Centrifugal Pumps available in various capacities.

Main Offices and Factory:
Grand Central Avenue
Elmira, N. Y.

Direct Factory Branch:
139th Street and Bruckner Boulevard
New York 54, New York

Export:
Ward LaFrance International, Inc.
Elmira, N. Y., U. S. A.
Cable Address: "Wardtruck"



The M-B insignia on Meili-Blumberg machines is your assurance of obtaining better road maintenance equipment. M-B machines are profit-makers. They have many uses, yet cost less than single-purpose machines. You get more hours of productive work with a minimum investment. All M-B road equipment is rugged in construction, easy to operate, quickly portable from job to job.

An M-B Crane Hook, Backfiller, Front-End Loader, Bulldozer, Snow Plow, Scarifier or Power Sweeper easily mounts on either M-B Power Grader or M-B Maintainer. The M-B Power Sweeper also attaches to any truck or tractor equipped with an undercarriage. Both M-B Street Markers and M-B Highway Markers can also be used for all-purpose paint spraying jobs. The M-B Tilt-Bed Trailer safely transports all types of equipment from one job to another.

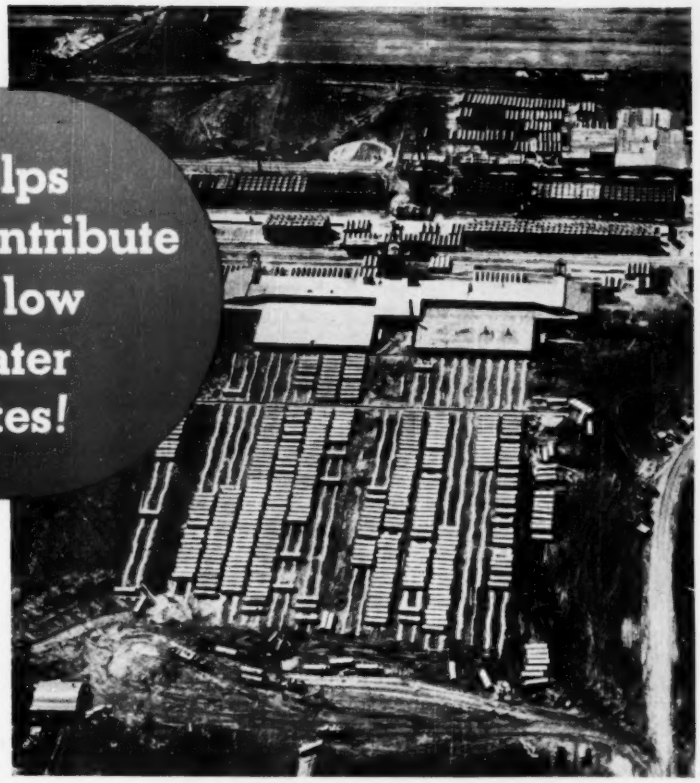
Contractors, airports, highway departments, cities, counties and municipalities all find M-B road maintenance equipment efficient and economical to operate the year 'round. Write for M-B Bulletin No. 144.

MEILI-BLUMBERG Corp.

BOX 110 • NEW HOLSTEIN, WISCONSIN • U.S.A.

A 5636-1P-C

LOCK JOINT PIPE helps contribute to low water rates!



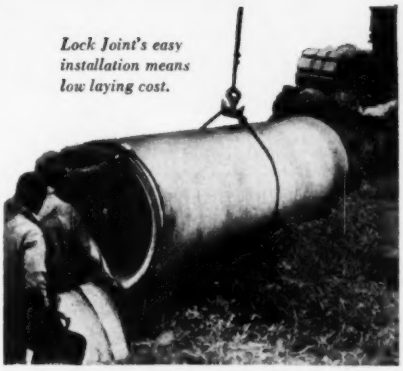
A temporary Lock Joint pipe plant at the site. Use of local labor and materials returns to the community a large part of the pipeline cost.

Although a modern water supply system represents a sizeable investment, sound engineering makes it possible to keep water rates at a minimum.

Knowing this, economy-minded water supply engineers specify Lock Joint Reinforced Concrete Pressure Pipe for mains of 16" or larger. Lock Joint's low initial cost, its long life, its exceptionally high carrying capacity and its negligible maintenance cost assure the utmost service for the consumer's dollar.

Water works officials who have installed Lock Joint pipe lines point to these lines as the most economical in their entire systems.

We shall be glad to discuss your requirements. Simply write or call our nearest office.



Lock Joint's easy installation means low laying cost.

LOCK JOINT PIPE COMPANY

Est. 1905

P.O. Box 269, East Orange, N. J.

PRESSURE PIPE PLANTS: Wharton, N. J. • Turner, Kan.

BRANCH OFFICES: Cheyenne, Wyo. • Denver, Colo. • Kansas City, Mo. • Valley Park, Mo. • Chicago, Ill. • Rock Island, Ill. Wichita, Kan. • Kenilworth, N. J. • Hartford, Conn.

SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipe of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

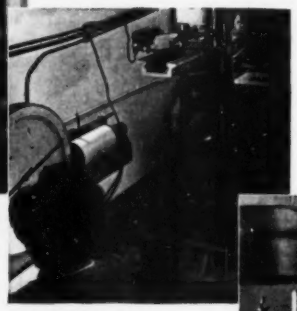
LOCK JOINT *Reinforced Concrete* PRESSURE PIPE

Announcing a New Research Laboratory and Foundry —

The Research Foundry is an integral part of the research laboratory and is housed in the same building. It is equipped with the most modern facilities for metallurgical research and development. Cut shows an experimental centrifugal casting operation.

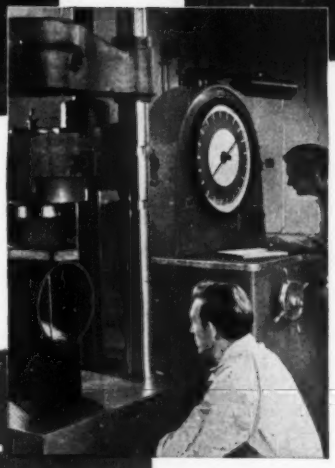
To implement the expanded activities of our Research and Development Department in product and process research, we have built and equipped a new Research Laboratory and Foundry at Burlington where our General Offices and our Burlington plant are located. One of the largest and finest in the cast iron pressure pipe industry, its completion and recent dedication signalizes the 50th Anniversary of the founding of our Company.

The Metallographic Laboratory is devoted to the study of metal structure. Cut shows a Projection Microscope of the latest design. This precision instrument magnifies up to 4400 diameters.



Talbot Strip Tests—an acceptance test for centrifugally-cast pipe—are also conducted in the Physical Laboratory. A strip cut from pipe is under test and at left is the mechanized recorder which shows load and deflection.

The Chemical Laboratory is a service laboratory for research and development projects, and performs qualitative and quantitative analyses of a wide variety of materials. It also establishes standard analytical procedures for the laboratories at our several plants.



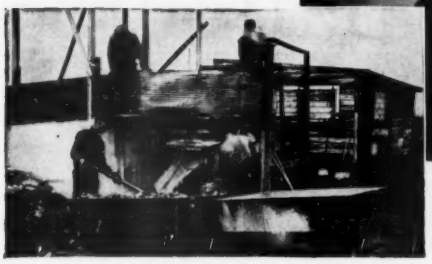
In the Physical Laboratory a 200,000 lb. universal testing machine of the most modern type is used for the Ring Crushing Test.

U.S. Pipe & Foundry Co.

GENERAL OFFICES: BURLINGTON, NEW JERSEY

HOW MAN *DAYS* WERE REDUCED TO MAN *HOURS!*

The Brooks Load Lugger will hoist, dump or lower a fully loaded truck body in 15 seconds.



Old brick, asphalt, etc., is reprocessed here, drops out of crusher directly into Brooks bodies—no re-handling necessary.

Brooks Load Lugger has 1000 other uses, is particularly adaptable for use in and around maintenance departments.

LOAD LUGGER AT COLUMBUS, OHIO SAVES 1152 MATERIALS HANDLING HOURS PER WEEK

Your city too can experience a quick nose-dive in labor costs and equipment investment as in the following case: The City of Columbus had a problem—street repair crews waiting for repair materials with resulting lost man hours, high equipment costs and low production. Loading and hauling of brick, asphalt, crushed stone, etc., cost entirely too much. Solution:—6 Brooks Load Luggers and 18 detachable truck bodies. Now, materials are loaded directly into Brooks bodies, thus eliminating re-loading. Each loaded body is quickly hoisted and hauled away when and as needed. The chief engineer says, "We are doing a more efficient job with fewer trucks and far less expensive labor, and are saving the City of Columbus thousands of dollars." Man days are now reduced to man hours to the tune of an estimated 1152 hours per week.

HOW YOU CAN CUT YOUR MATERIALS HANDLING COSTS

Our competent engineers will make a comprehensive survey which might reveal costly delays in your operations. Send for our representative to determine how many man-hours you can save. No obligation, of course.

Brooks LOAD LUGGER (TRADE MARK REGISTERED) ONE MAN OPERATED

IT WILL PAY YOU TO INVESTIGATE

BROOKS EQUIPMENT & MFG. CO., 1955 DAVENPORT RD., KNOXVILLE, TENN.

☐ Please send literature showing wide range of Load Lugger uses.
☐ Please send your representative to make survey—no obligation.

NAME ..... TITLE .....
DEPARTMENT .....
ADDRESS .....

BROOKS EQUIPMENT & MFG. CO. • 1955 DAVENPORT RD. • KNOXVILLE, TENN.

"Badger Meters are the *best*...when we buy more they will be Badgers"

A waterworks superintendent wrote this, and went on to say: "Our average dead meters for a year was only 7 per month . . . about as low an average as I know of. Your city cannot go wrong buying Badgers".

Millions of satisfied users of Badger Meters in over 5000 communities prove that "It Pays to BUY BADGER" . . . unmatched in precision-construction, durable materials, and sustained accuracy, at lowest operating cost.

ANOTHER NEW Badger Chart, No. 696 (Practical floor plan for a large meter repair shop). Available without cost or obligation. WRITE today for this chart.

BADGER METER MFG. CO., MILWAUKEE 10, WIS.

BRANCH OFFICES:
NEW YORK CITY • PHILADELPHIA • WORCESTER, MASS.
SAVANNAH, GA. • CINCINNATI • CHICAGO • KANSAS CITY, MO. • WACO, TEXAS • SALT LAKE CITY, UTAH
PORTLAND, ORE. • SEATTLE, WASH. • LOS ANGELES

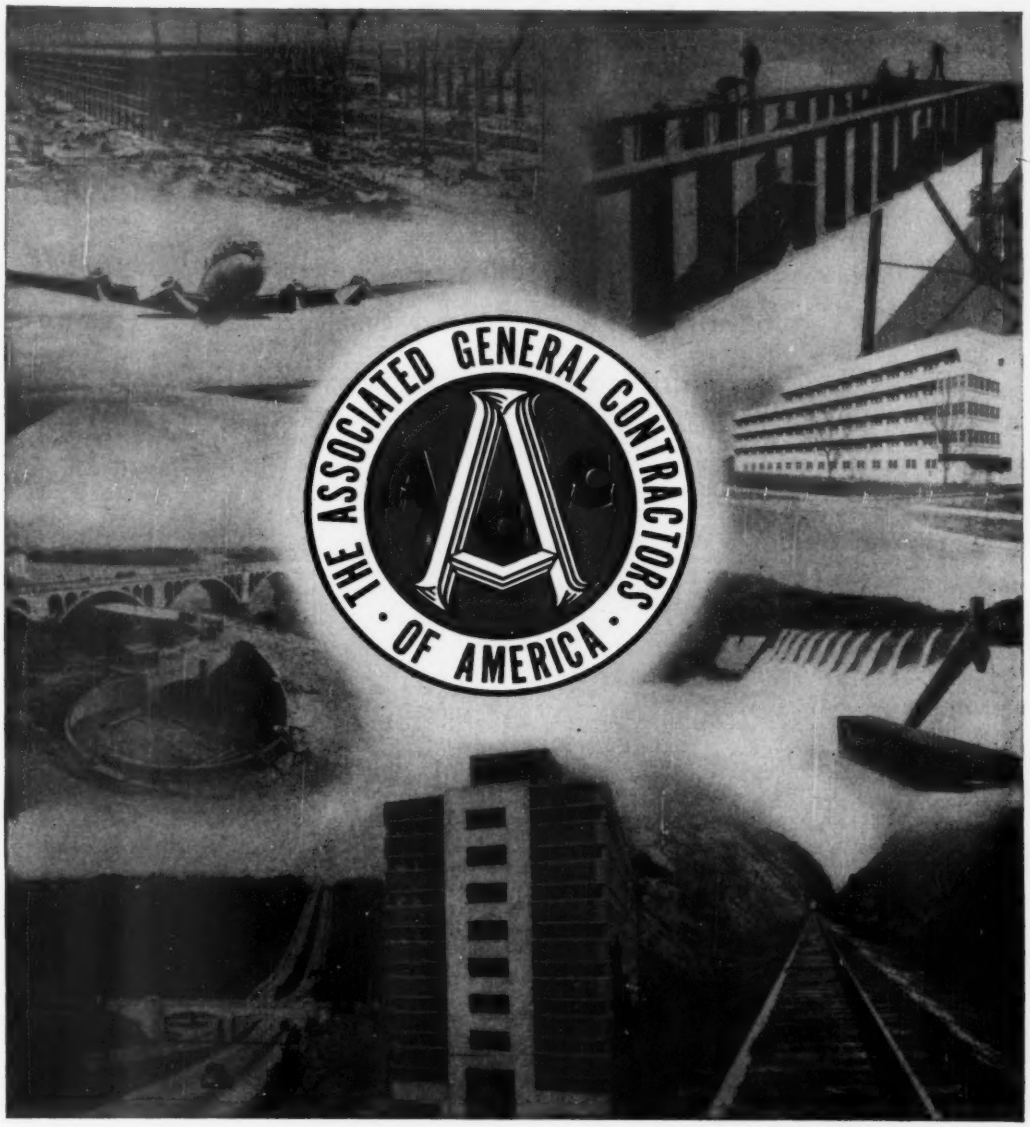
You will find a Badger Meter size and type for every waterworks service. Shown here are Model SC-SOT (for warm climates), and Model A-SOT (for cold climates) . . . sizes ⅝" to 1¼" . . . other models in sizes up to 12". Write for complete information and prices.

BADGER Water METERS

ACCURACY · LOW-COST MAINTENANCE · DURABILITY · SENSITIVENESS

For 30 years... **ASSURANCE TO THE PUBLIC OF**

SKILL • INTEGRITY • RESPONSIBILITY • IN CONSTRUCTION



America Progresses Through Construction . . . Construct by Contract!

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.

BUILDINGS • HIGHWAYS • RAILROADS • AIRPORTS • PUBLIC WORKS

More than 100 Chapters and Branches throughout America • National Headquarters, Munsey Building, Washington 4, D. C.

AMERICAN-LAFRANCE

ALL OVER THE CONTINENT, YES, IN FACT, ALL OVER THE WORLD, AMERICAN LaFRANCE FIRE APPARATUS AND EQUIPMENT IS PROVIDING REAL FIRE PROTECTION. Fire knows no boundaries, it is an international problem for control, and the World's Finest Fire Engines built by AMERICAN LaFRANCE are doing their part in reducing fire losses.

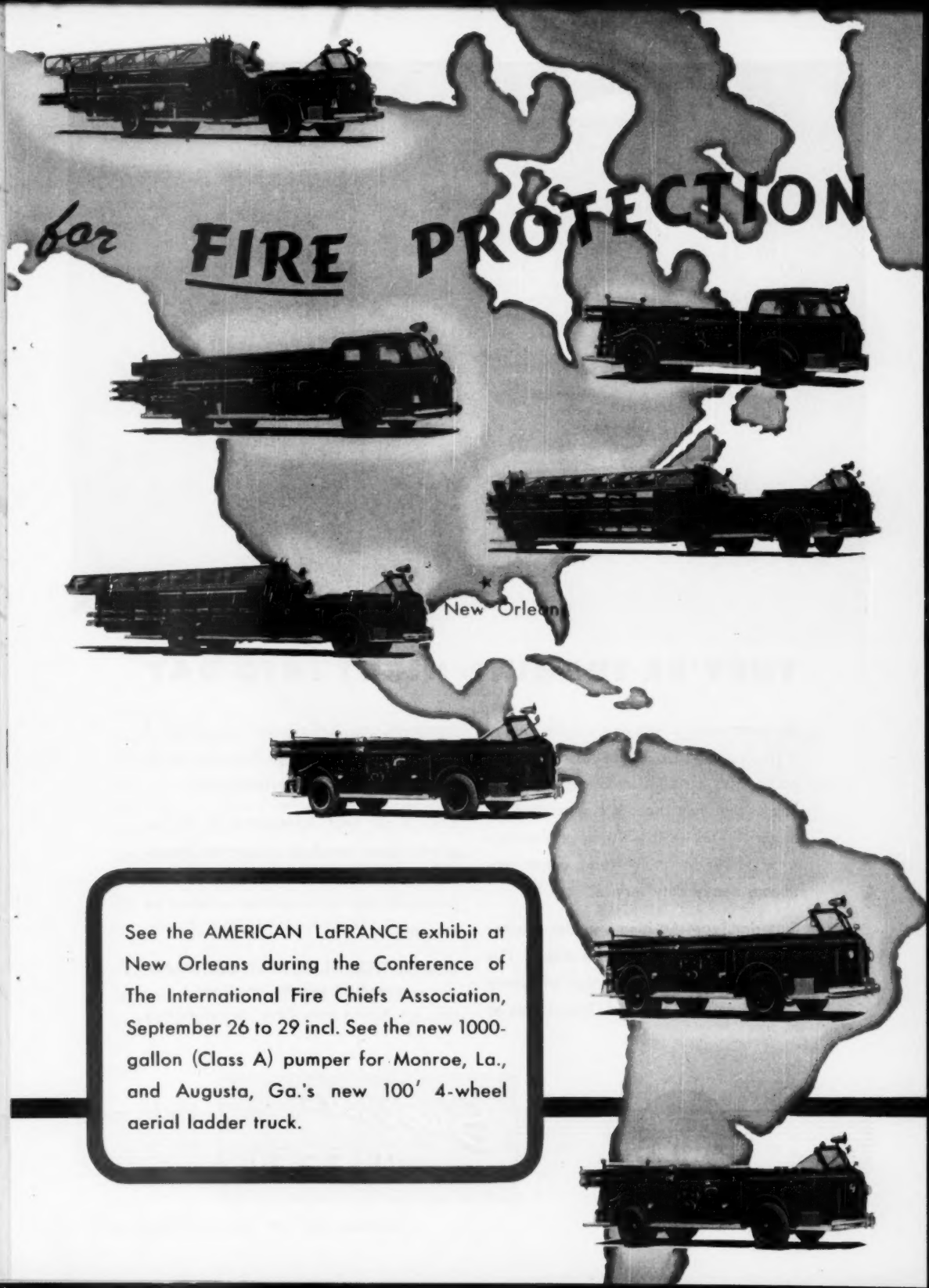
Baton Rouge, La., one of the fast-growing cities in the South has expanded the area of fire protection and Chief Robert Bogan has selected dependable, maneuverable, and efficient Cab-Ahead-of-Engine American LaFrance pumpers for real fire protection.

AMERICAN-LAFRANCE-FOAMITE CORPORATION

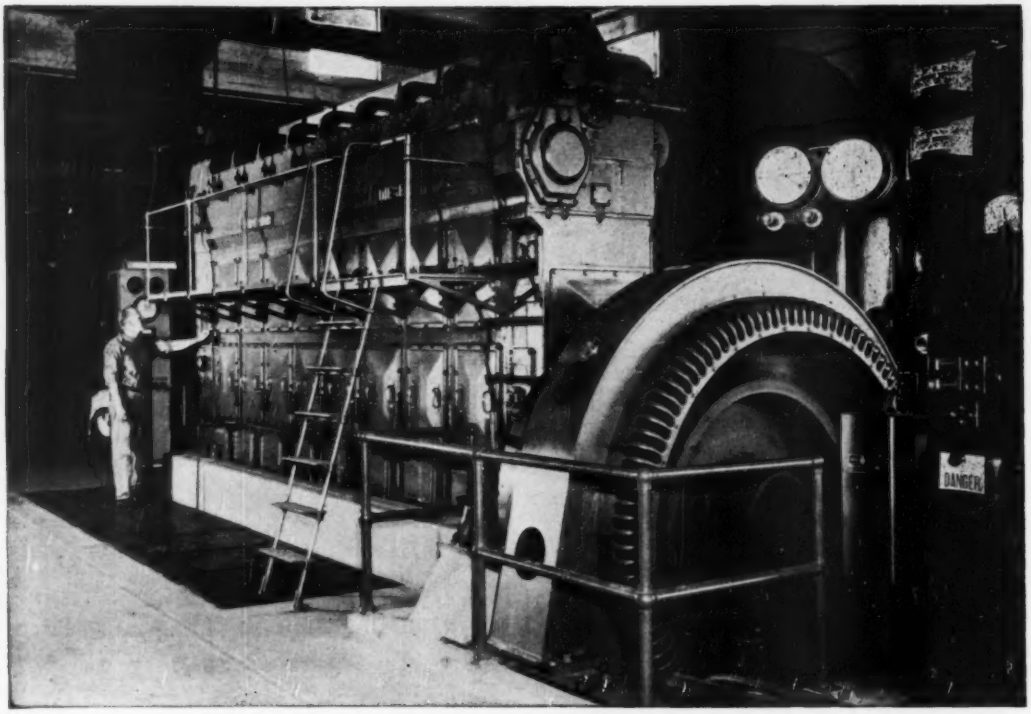
ELMIRA, NEW YORK, U. S. A.

LAFRANCE FIRE ENGINE AND FOAMITE LIMITED

TORONTO 9, ONTARIO, CANADA



See the AMERICAN LaFRANCE exhibit at New Orleans during the Conference of The International Fire Chiefs Association, September 26 to 29 incl. See the new 1000-gallon (Class A) pumper for Monroe, La., and Augusta, Ga.'s new 100′ 4-wheel aerial ladder truck.



THEY'RE TURNING NIGHT INTO DAY

An Iowa town is enjoying brighter nights and dependable electrical power because they installed a Superior Diesel. The engine they chose is a supercharged model 80-GX-8. It will deliver dependable power for many years under continuous heavy duty service.

Superior Supercharging provides greater power output from the same engine. This overall increase in mechanical efficiency means lower fuel costs per kilowatt hour at maximum and partial loads. Operation of Superior Supercharging is fully automatic. No control devices are necessary.

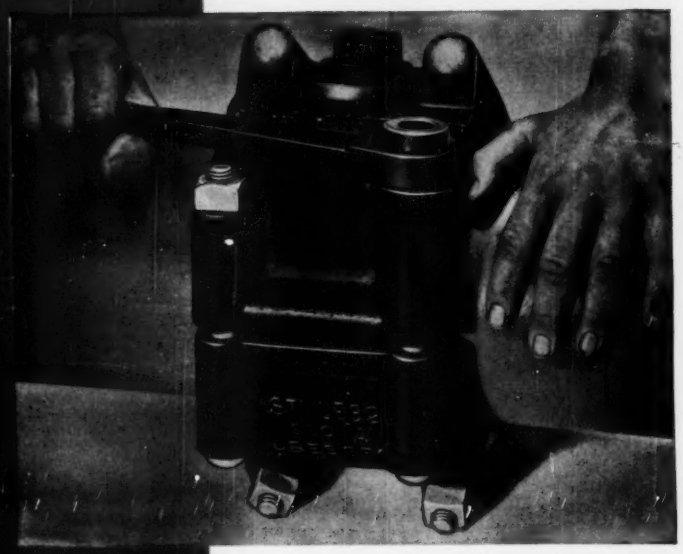
One of our field representatives will be glad to show you how a Superior Supercharged Diesel can solve your power problems. Just write and tell us when he can call.

THE NATIONAL SUPPLY COMPANY
SUPERIOR ENGINE DIVISION
Plant and General Sales Office: Springfield, Ohio

THE NATIONAL SUPPLY COMPANY NSCO

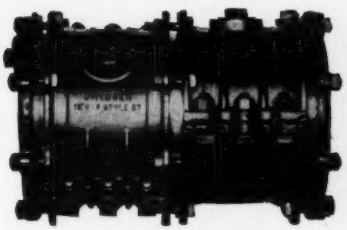
Superior DIESEL

one man . . . one wrench . . . ten minutes



When winter breaks [illegible] quick, *permanent* repairs [illegible] "Adjustable" Repair Sleeve, Style 82. Regardless of weather, one man, using only a wrench, can repair a break or split in a matter of minutes. Interchangeable sections make these "pre-packed" repair sleeves adjustable to exact fit on all classes of AWWA pipe, and the specially compounded rubber gaskets introduce flexibility into your line.

The *low price* of the Style 82 offers genuine economy. Order now—to be sure you have a supply on hand for emergency repairs this winter. For CIP from 4″ to 8″ in diameter.



FOR LONGER SPLITS, LARGER SIZES

Dresser Split Sleeve, Style 57C, used singly or in combination (as shown above), encloses breaks, holes, splits in CIP longer than the Style 82 will accommodate. Available in sizes through 12″.

DRESSER "ADJUSTABLE" REPAIR SLEEVES

Dresser Manufacturing Division (One of the Dresser Industries), Bradford, Pennsylvania • In Texas: 1121 Rothwell St., Houston
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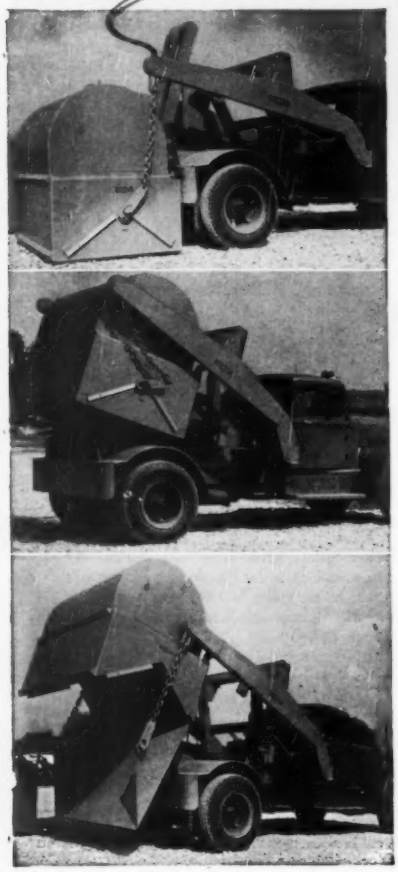
OPEN REFUSE FEEDS THIS

Protection from Disease Carriers Is a Major Advantage of the Dempster-Dumpster System of Bulk Rubbish Collection



Rats and flies feeding on open refuse are a health menace no progressive city can endure. That's why, in more and more cities, the sanitary Dempster-Dumpster system of bulk rubbish collection is being installed. Many depositories, which are actually large detachable containers, are placed at convenient locations in business districts, housing sections, apartments and schools, in fact, everywhere that the volume of rubbish would constitute a major sanitation problem if left uncovered. Once the rubbish is placed inside and the convenient door closed, no rats or flies can contaminate it . . . no wind can scatter it.

Another great advantage of the Dempster-Dumpster System is the simple, low-cost manner in which the rubbish is collected. The Dempster-Dumpster Truck Hoisting Unit makes scheduled rounds, picks up each full container in turn, hauls it, dumps it and returns the empty to its original location. Shown at left are the three simple steps in handling a container. Top, truck hoisting unit prepares to pick up loaded container. Center, container in carrying position. Bottom, container is automatically dumped. One man, the driver, handles the entire operation from hydraulic controls in the cab. Help your city to cleaner, more efficient bulk rubbish collection by writing today for complete information.

DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS, Inc.

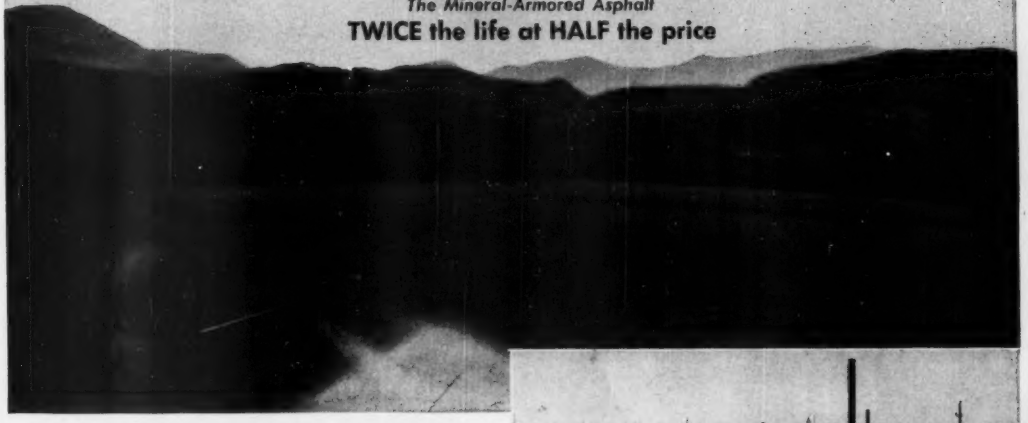
899 Dempster Bldg. Knoxville 17, Tennessee

Another Product Pioneered By Bitumuls

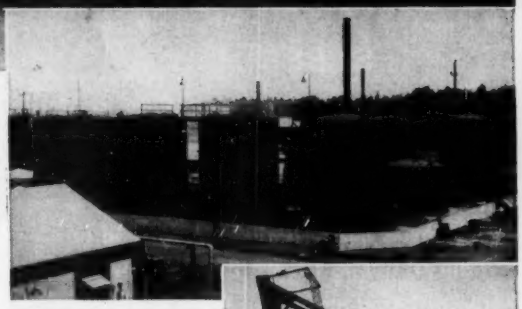
Laykold FIBRECOAT

The Mineral-Armored Asphalt

TWICE the life at HALF the price



This is a roof in Alaska — not an air-field — one of the largest roofs in the world. Sprayed with FIBRECOAT — in record time and in adverse weather.



FIBRECOAT protects refinery tanks and insulation — endures over a wide range of temperature.

FIBRECOAT *Protects—*

METAL—

ROOFS—

MASONRY

FIBRECOAT protects steel and masonry — outlasts red lead and oil — costs less.

ENDURES—over 1200 hours in Standard Weatherometer Tests, without breakdown. Passes Navy Salt Spray Cabinet Test.

SAFE—Spray or Brush COLD. Bonds to damp or dry surfaces. No fire hazard to job or workmen.

COLORS—Attractive and durable Green, Red or Black.

ACCEPTED—Over 6 million sq. ft. covered last year alone—on roofs, tanks, bridges, buildings, pipe, etc.

ECONOMY—Cost averages less than $1.00 per gallon. Sprays 5 to 10,000 sq. ft. per man per day.

A better coat with FIBRECOAT

Get this folder— a short, pleasant story of dollars saved for YOU.

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STANCAL ASPHALT & BITUMULS COMPANY

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In the East

AMERICAN BITUMULS COMPANY

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Washington 6, D. C. · Baltimore 3, Md. · Perth Amboy, N. J.
Columbus 15, O. · St. Louis 17, Mo. · Baton Rouge 2, La.
E. Providence 14, R. I. · San Juan 23, Puerto Rico

Don't Handicap

The two circles illustrate the difference in turning radius resulting from All-Wheel Steer. This greatly increased maneuverability is a tremendous help, day in and day out, on all types of work.

Short radius curves and sharp corners are no problem. Making a ditch cut around the corner shown in the picture above is easy for the A-W operator—impossible with any other grader.

Working on a slope is a quick, easy and accurate job. Whether it's riding the bank (as in the photo above), working up from the bottom, or down from the top, All-Wheel Steer holds the grader steadily to the desired position.

Using All-Wheel Steer to offset the front and rear trucks enables the A-W machine to do superb finishing on any slope. In the picture above, the grader is finishing an in-slope, working up from the ditch, leaving no tire marks to mar the surface.

Your horsepower!

Offsetting the grader through All-Wheel Steer neutralizes side thrust. In the photo above, the rear drivers push behind the "toe" of the blade, the front drivers pull ahead of the "heel." All wheels stay clear of the heavy windrow.

Ditches too wet, or too muddy, to furnish traction for ordinary graders are handled easily by the A-W machine as in the photo above. Rear Steer puts the back wheels up where the "going is good"— *but only Rear Steer can do it.*

A Motor Grader with ALL-WHEEL STEER

is Twice as maneuverable as one with Front Steer only

Austin-Western "88-H," "99-H" and Master "99" Power Graders travel quickly and easily to places inaccessible to ordinary graders, maneuver around obstructions such as culverts, bridges or poles, grade sharp reverse curves, and move the heaviest windrows farther and faster with no interference from front axle, frame or scarifier. All-Wheel Steer saves time on every job, makes it possible to do more jobs—faster, easier and cheaper, under all ground and road conditions every month in the year.

AUSTIN-WESTERN COMPANY • AURORA, ILLINOIS, U. S. A.

BUILDERS OF ROAD MACHINERY

Austin Western

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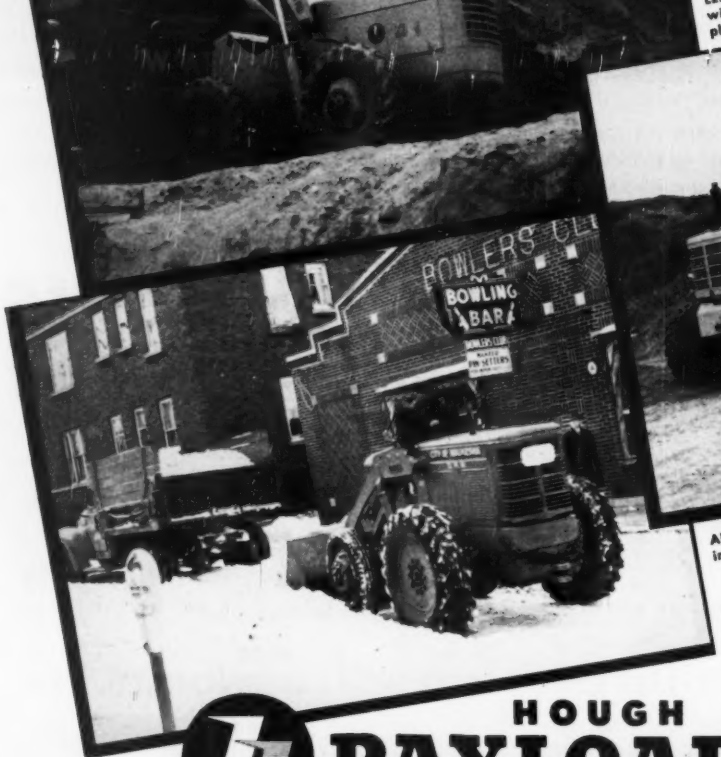
PAYLOADERS . . . *Essential in* EVERY *City*

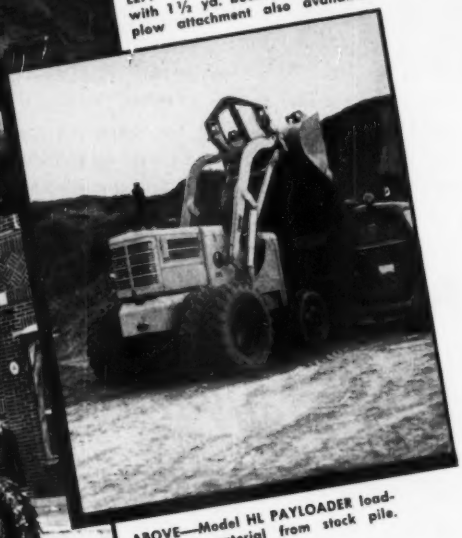
There's a *new* big and powerful 4 WHEEL DRIVE PAYLOADER which offers power, speed and versatility ideal for city administration. Its power steering, 1½ cu. yd. bucket capacity, ability to travel anywhere and handle all types of city digging, loading and carrying operations mean increased efficiency and greater savings.

There's no limit to the ways PAYLOADERS are serving cities from coast to coast. PAYLOADERS are so versatile they can be kept busy all day long and all year around. They dig, grade, level, spread, skim, strip and backfill . . . load dirt, stone, gravel and sand . . . stockpile materials, plow and load snow . . . lift, load, pile and move supplies in the yard and on the job . . . handle trash and sanitary-fill operations. Large pneumatic tires enable them to work anywhere — on streets or alleys . . . travel on pavements, over curbs and sidewalks. Speeds up to 24 m.p.h. The Frank G. Hough Co., 710 Sunnyside Avenue, Libertyville, Illinois.

Write for your FREE LITERATURE covering any size of PAYLOADER — the big 1½ yd. 4-wheel drive Model HM, the 1¼ yd. Model HL, the ¾ yd. Model HF, the 10½ cu. ft. Model HA.

LEFT — Model HM PAYLOADER with 1½ yd. bucket. Big V snow plow attachment also available.





ABOVE—Model HL PAYLOADER loading road material from stock pile.

●

LEFT — The Model HF PAYLOADER does a neat job of snow removal, whether it's loose or packed.

HOUGH
PAYLOADER
Manufactured by THE FRANK G. HOUGH CO.

SAY HUFF

Experience of 30-Odd Years in Production of

UTILITY BODIES

Type B-4—features 4-man crew compartment in body . . . used by power, light, and communications utilities.

We build utility truck bodies on an assembly line basis. In this field, we are the largest exclusive manufacturers of standard utilities equipment for motor vehicles.

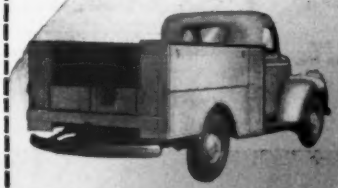
The American line includes several different types of bodies — line construction, light line service, general service and meter installation, utility, crew compartment, maintenance, installation, signal lighting maintenance, street lighting, and others.

If you have an idea on bodies for your particular fleet, chances are we already have a body for your requirements, or with a few minor changes in one of our bodies can give you what you need — on a production basis.

We can serve you with what you need to help you serve others.

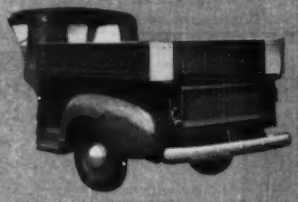
Type DPL and DT Line Construction bodies are the standard design for power, light, and communicating utilities.

American Tower Lift — Provides working heights of better than 30 feet. Used in line construction work, street lighting, signal maintenance, tree trimming, and many other types of work. Two models—heavy duty and light duty.



Type 4460—Universal for all types of service work — electric, gas, etc., appliances, meters, plumbers, etc.

Surveyor — An example of an American specialized body. The Surveyor is used for carrying surveying crews and equipment.



Type 4804—Ready-made, lock tight compartments provide generous carrying space for tools and diversified equipment items.

American Revolving Aerial Ladder — American also makes the Seagrave revolving ladder, either manually or hydraulically operated.

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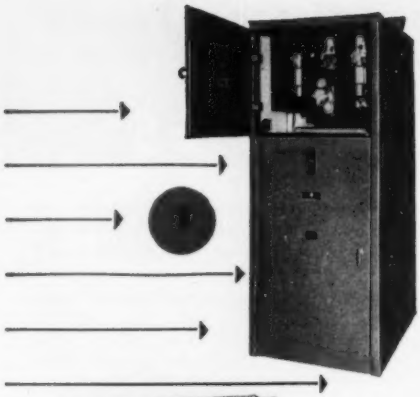
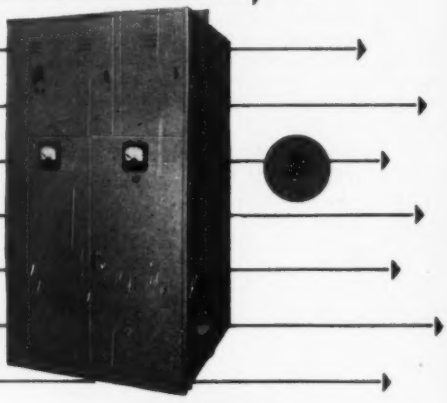
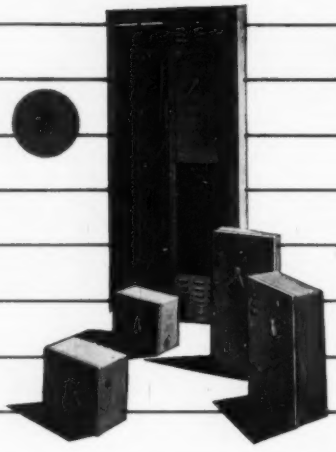
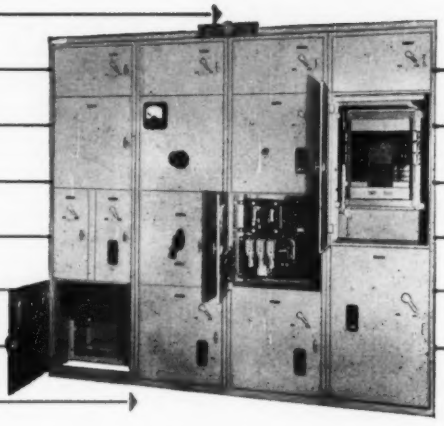
short-cut to









	LIMITAMP
Sewage and Water Applications	Pumps, compressors, blowers, conveyors
Voltage	2500 and 5000 v a-c
Horsepower	700 hp at 2300 v; 1250 hp at 4000 v or 4600 v
Motor Type	Any
Starter Type	Full- or reduced-voltage, multi-speed, reversing or non-reversing
Short-circuit Protection	Up to 150,000 kva at 2500 v and 250,000 kva at 4600 v max interrupting rating, current-limiting fuses operate in ¼ cycle; air-break contactors
Mounting	Free-standing; enclosed a-c power bus available for multi-starter lineups
Ask for Bulletin No.	GEA-4247

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efficient, attractive plant layout

HEAVY-DUTY LOW-VOLTAGE CONTROLLERS	MOTOR CONTROL CENTERS	CABINETROL
Pumps, compressors, blowers, conveyors	Pumps, compressors, blowers, conveyors, auxiliary equipment, lighting circuits	Complete plant-group control including power-company metering, other meters
600 v a-c, 230 v d-c max	220 to 600 v a-c	220 to 600 v a-c
350 hp d-c, 800 hp a-c max	Up to 100 hp at 440 v	Up to 400 hp at 440 v; or 200 hp at 220 v
Any	Squirrel-cage induction; multi-speed	Any
Full- or reduced-voltage, multi-speed reversing or non-reversing	Combination starters, full-voltage or reactor reduced-voltage, reversing, non-reversing or two-speed	All kinds, including magnetic and electronic
Up to 25,000 or 50,000 amp short-circuit interrupting rating, starters with draw-out air circuit breakers	Up to 25,000 amp interrupting rating; combination starters with air circuit breakers in isolated compartments	Up to 50,000 amp interrupting rating; combination starters with air circuit breakers or fused switches in isolated compartments
Free-standing; enclosed a-c power bus available for multi-starter lineups	Wired or unwired, accessible from front	Free-standing, completely wired, accessible front and rear
GEA-4939	GEA-4979	GEA-3856A

One Of The Above General Electric packaged control equipments can be tailored from standard parts to fill any sewage- or water-plant need. Each is completely metal-enclosed, factory-assembled and tested, and shipped ready to install. To save you installation time and expense, all bus connections, panel wiring, and interconnections can be made at the factory . . . just set the unit in place and hook up incoming and outgoing leads.

All the above equipments are a standard height to present a uniform, attractive appearance when installed together. Metal enclosures provide greater safety to personnel and equipment.

PLAN EARLY AND PROFIT!

Your consulting engineer or General Electric representative will tell you more about these equipments and help you plan your entire electrical layout. Consult him early, so that you can profit by co-ordinated planning . . . thereby simplifying engineering, buying, construction and installation. Apparatus Dept., General Electric Co., Schenectady, N. Y.

With factories in Anaheim, Los Angeles, Oakland, Ontario, San Francisco, San Jose, Seattle, and Richland, and Sales Offices in twenty Western cities.

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WATER PLANT • SEWAGE PLANT
ELECTRIFICATION
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INTERNATIONAL HARVESTER COMPANY • Chicago

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WHEEL TRACTORS
DIESEL ENGINES
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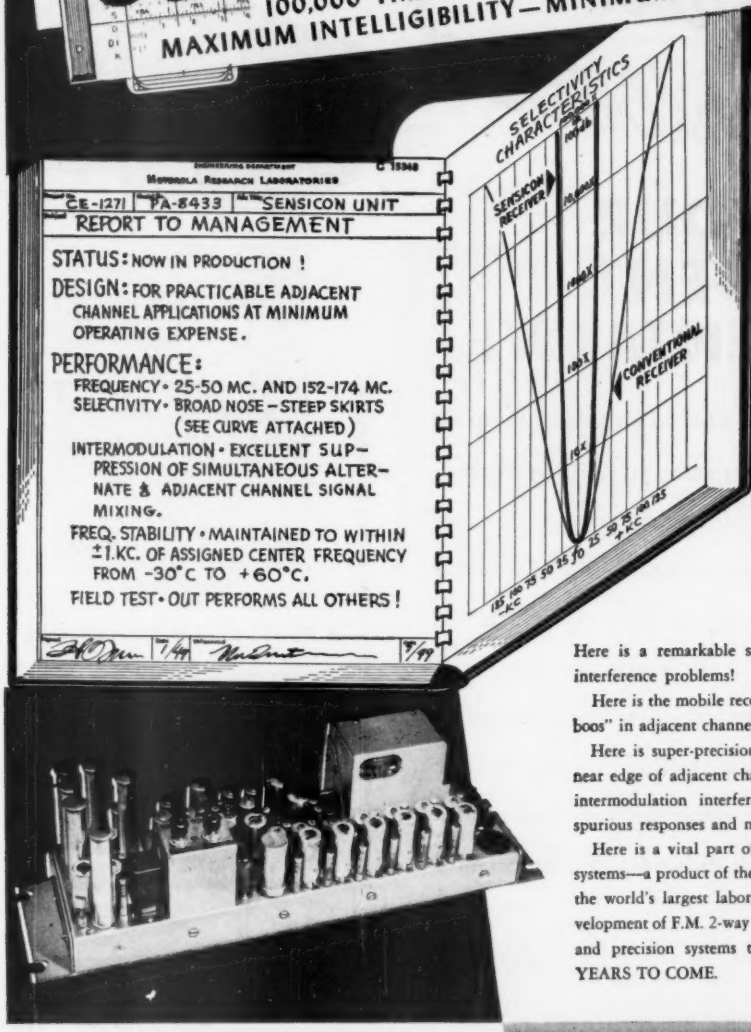
100,000 TIMES IMPROVED SELECTIVITY—
MAXIMUM INTELLIGIBILITY—MINIMUM MAINTENANCE


Motorola Research Laboratories
CE-1271 | TA-8433 | SENSICON UNIT
REPORT TO MANAGEMENT
STATUS: NOW IN PRODUCTION !
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PERFORMANCE:
FREQUENCY • 25-50 MC. AND 152-174 MC.
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communications than ever before with this *new*

ADJACENT CHANNEL RECEIVER

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Here is a remarkable scientific solution to communications interference problems!

Here is the mobile receiver guaranteed to beat all the "bugaboos" in adjacent channel operations!

Here is super-precision selectivity, 100 db. rejection at the near edge of adjacent channels, along with positive control of intermodulation interference, desensitizing, frequency drift, spurious responses and nuisance noise.

Here is a vital part of all modern mobile communications systems—a product of the MOTOROLA Research Laboratories, the world's largest laboratories devoted exclusively to the development of F.M. 2-way radio equipment. Precision equipment and precision systems that will be YEARS AHEAD FOR YEARS TO COME.

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A well planned program of meter testing and repairing can easily be put into operation. It needs no elaborate equipment. For valuable information on this subject, ask for our Manual—"Planned Meter Repair and Testing." Your Trident representative will be glad to assist you.

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How Subscribers Use The American City

AS THIS magazine starts its fifth decade of service to municipal officials and department heads, the editors have invited one representative of each major area of its broad field to tell briefly "How I Use *The American City*." Believing that the replies will be of general interest, they are printed on this and the next three pages.

MAYOR

OSCAR HOLCOMBE, ***Mayor of Houston, Texas, writes:***

We offer our sincere congratulations to THE AMERICAN CITY magazine on the occasion of its 40th anniversary. The various department heads and I have subscribed for many years to THE AMERICAN CITY and have made use of the interesting and authoritative material that it always has contained.

Perhaps the greatest value of THE AMERICAN CITY to us is the opportunity it affords to keep up with new and experimental methods, systems, and processes in the operation of all phases of city government. Suggestions and ideas thus gained are particularly valuable in the operation and development of a growing city such as Houston.

THE AMERICAN CITY magazine not only is a matter of current interest to us, but also is a valuable source of reference material. In some departments, such as our Department of Public Works, it is bound year by year and referred to through the published index, while in others, such as our City Planning Department, it is clipped and the articles are placed in reference files, indexed according to subject.

We of the City of Houston take this occasion to express our appreciation for past service and to say that we look forward to the assistance of THE AMERICAN CITY in the future.

PUBLIC WORKS COMMISSIONER

IRA L. ELMER, ***Commissioner of Public Works, Rome, N. Y., writes:***

I am pleased to take this opportunity to congratulate you and your staff on your 40th anniversary and wish you many more years of success in publishing a magagine of unlimited value in the public-works field.

I look forward to the receipt of my copy each month, knowing it will bring some new ideas or helpful methods which will save us money or increase our results over our present methods. This is not only true in the public-works field but applies the same to all municipal problems. I fail to see how any public official or civic-minded person can be without your publication.

I have used various issues of THE AMERICAN CITY to prove my points before the Council or Committees, and as yet I have never heard anyone question an article appearing in your magazine. This fact has proven the attention and respect shown the good work you are doing.

I have all copies received to date on file with an index to all matters of importance to my department; this includes both news articles and advertising. The index is filed with my copy of your *Municipal Index and Atlas*, which I use nearly every day.

Your service is outstanding and I am sure I will always receive a copy while in the service of the public, as well as after, as long as I have an interest in my community and its welfare.

SANITATION SUPERINTENDENT

WILLIAM A. XANTEN, ***Superintendent, Division of Sanitation, Engineer Department of the District of Columbia, writes:***

On the occasion of the 40th anniversary of THE AMERICAN CITY magazine may I express my sincere appreciation for a job well done, and my best wishes for your continued success.

THE AMERICAN CITY has been of extreme value in the field of operation and maintenance as it relates to municipal government, the subject in which I am vitally interested. I trust it will continue to be the policy of your periodical to stress the importance of practical and economical solutions to many of these problems.

THE AMERICAN CITY circulates among all of the engineering branches of the District of Columbia Government. On many occasions articles carried in your publication have been provocative of discussion and special reports. There is no finer example of useful and constructive writing than that which keeps abreast of developments in the field of maintenance and operation which are challenging to those in the business. It is particularly refreshing to those of us engaged in the work of refuse collection and disposal and street cleaning to have access to a magazine which devotes a reasonable amount of space to the subject. From an entirely selfish angle, I trust you will continue this service.

CITY MANAGER

GEORGE E. BEAN, *City Manager, Pontiac, Mich., writes:*

THE AMERICAN CITY is a good and stimulating source of ideas for many kinds of municipal developments.

Information collected by THE AMERICAN CITY and published in the 1948 *Municipal Index* was particularly helpful in a recent study. Quite frequently such articles on specific subjects aid in the finding of a solution to some local problem.

Articles of general interest aid in keeping department heads and elected officials up to date on modern trends and methods of procedure.

After I look through it for interesting articles, it is referred to the Planning, Public Works or other departments for items that may concern them.

PUBLIC SERVICE DIRECTOR

R. A. WILLIAMS, *Director of Public Service and City Engineer, Miami, Fla., writes:*

I wish to compliment your magazine on several articles published over the past few months covering some of Miami's public-improvement problems and accomplishments.

The same goes for the many interesting and timely articles on public-service policies and practices throughout the country.

THE AMERICAN CITY provides a source of valuable information covering equipment, machinery, and modern engineering applications, for the everyday problems of the municipal engineer and public-works official.

My division chiefs, especially in streets, bridges, sewers, incineration, and waste collection, read THE AMERICAN CITY regularly.

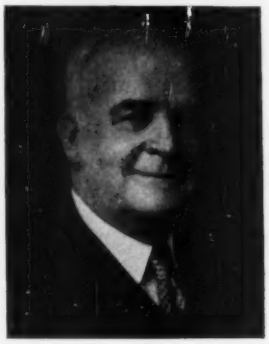
My office receives two copies of each edition. One copy is available for division heads, and a complete file of all issues is maintained. The other copy is used for clipping articles which are peculiar to some of our vital projects, and these clippings are filed in our regular files with other data.

Your magazine has supplied us with a very useful file on household garbage grinders—a subject still controversial in many areas, and one which will have to receive close study in our planning and design for a new sewage-disposal plant and distribution system.

Your street-paving articles are also very informative and helpful.

For my particular public-works activities, I find THE AMERICAN CITY the most suitable publication of this kind in that field.

TOWN CLERK



ARTHUR J. SHINNERS, *Town Clerk, Brookline, Mass.; President, National Institute of City and Town Clerks, writes:*

It is with pleasure that I add my words of commendation to THE AMERICAN CITY on the occasion of your 40th anniversary.

Since I came into the office of Town Clerk, the magazine has been a part of our files and is circulated also among the department heads, who are likewise interested in the various items published. They are always very newsy. After all, the aim and purposes of officials today is to make for more efficient government and the numerous articles published have been found very helpful to that end.

Brookline, a town of approximately 60,000 inhabitants, is the largest town within the United States and larger than twenty-four of the Massachusetts cities. The publication is used in many of the town departments.

You are to be commended for the publication of the *Municipal Index and Atlas*, which has been of inestimable value. It is referred to constantly by me. Students from schools often come to the office in search of information and this is readily found in your *Atlas*. This is a very valuable adjunct to the office, as are the monthly issues of THE AMERICAN CITY.

The advertising that is carried is carefully read and brings to the municipal officials information that is helpful and interesting.

I use THE AMERICAN CITY to great advantage. In fact I would not be without it or the *Atlas*, and unhesitatingly recommend both publications to any municipal official.

CITY AND COUNTY PLANNER

HUGH R. POMEROY, *Director, Westchester County (N. Y.) Department of Planning, writes:*

The only reason why I have been reading THE AMERICAN CITY for only 28 years is the fact that I have been engaged in work relating to municipal affairs for only 28 years. I was fortunate in having a wise predecessor when I started out as a chamber of commerce secretary back in 1921, in Redondo Beach, Calif.: THE AMERICAN CITY was practically a part of the office operation. During the comparatively brief period of my service in that position, followed by a term as a member of the California Legislature, and then throughout more than a quarter of a century of various activities in planning and housing, I have found THE AMERICAN CITY a constant and exceedingly useful aid. A rich granary of information, a wisely selective reporter, a reliable guide to municipal supplies and equipment—THE AMERICAN CITY is all these and so much more. No drum-beating crusader, its face has been set ever forward in quiet encouragement both of improved municipal administration and of alert citizen participation in public affairs.

Those who have known the helping hand of THE AMERICAN CITY during its entire life can comment much better than I on the fact that 40 years represents a period of vast improvement in municipal administration — improvement for which THE

AMERICAN CITY is certainly not without some degree of responsibility.

How can this magazine be described? To the scrupulous accuracy that is taken so much for granted that it seems strange even to mention it, there must be added the characterizations of an integrity that is monumental and a combination of dignity and great vitality. Having recounted these attributes, it is no accident that they characterize as well the editor, for THE AMERICAN CITY and Harold S. Buttenheim are almost synonymous. It is with more than mere respect that honor is paid them both on the magazine's 40th anniversary. It is with the affectionate appreciation that one has for old and trusted friends that municipal officials and civic leaders the country over offer every good wish for the years ahead, both for the magazine and for the wise, far-visioned, and kindly man who has made it virtually a municipal institution.

EDITOR'S NOTE: Thank you, Hugh Pomeroy; but it is only as an editorial "we"—which includes an able and forward-looking group of technical and staff associates—that the editor-in-chief can accept your greatly appreciated tribute.

CHIEF ENGINEER

SAMUEL B. MORRIS, ***General Manager and Chief Engineer, Department of Water and Power, Los Angeles, Calif., writes:***

My heartiest congratulations to THE AMERICAN CITY on its 40 years of constructive service to the municipalities of the United States. I know of no other publication which so completely covers virtually every phase of municipal departmental activity.

I always take time to read each issue of THE AMERICAN CITY for two reasons: first, each issue is interesting and informative; second, your concise style of reporting packs a maximum amount of information into a minimum of reading time.

Our Department of Water and Power library receives three copies of THE AMERICAN CITY each month for circulation among the 24 offices which request it. The library also maintains a reference file of articles which appear in your publication and which are of interest to the Department. Frequent use is made of this file.

DIRECTOR OF PUBLIC SAFETY

JOHN B. KEENAN, ***Director of Public Safety, Newark, N. J., writes:***

Permit me to offer my sincere congratulations on the occasion of THE AMERICAN CITY's reaching its 40th anniversary, and to express the hope that it will continue its public service for many years to come. It is a splendid magazine.

I have been reading THE AMERICAN CITY almost from the day I entered Newark's employ thirty-six years ago. I have found it of particular value since my initial election as City Commissioner and Director of Public Safety in 1941.

PROFESSOR OF SANITARY ENGINEERING

DON E. BLOODGOOD, ***Professor of Sanitary Engineering, Purdue University, writes:***

THE AMERICAN CITY gives me a broad picture of public-works planning, construction, and financing. I find many ideas in the short articles that stimulate further thought.

My copy is available to all graduate and undergraduate students at Purdue.

The advertising pages keep us informed of all new developments in equipment and services.

Copies of THE AMERICAN CITY are placed in the Purdue Library after three or four months' use in my office. I understand that the University's Public Safety Institute and the Agricultural Experiment station also subscribe for the magazine.

P.A.C.H. DIRECTOR

HERBERT EMMERICH, ***Director, Public Administration Clearing House,*** **writes:**

AT 1313 East 60th Street, Chicago, there are some 19 organizations interested in the fields of municipal administration, state administration, and other phases of public administration generally. All of them help support the Joint Reference Library. THE AMERICAN CITY is probably the most popular item in that library. Of all the 850 periodicals received, none is more eagerly sought or in greater demand. At least three copies come to it regularly, in addition to half a dozen copies that go to the several organizations directly. There are fifteen research people at "1313" to whom THE AMERICAN CITY is regularly routed. Many of the organizations keep their own copies and clip articles of special interest. The staff of the Joint Reference Library also indexes articles of special interest in its consolidated card index and frequently lists them in its regular weekly bulletin, *Recent Publications on Governmental Problems*, which is distributed throughout the United States.

The relationship between the organizations at "1313" and the staff of THE AMERICAN CITY magazine over the course of years has been a most happy one, and there is a constant exchange of information between Chicago and New York which enriches the data available for the subscribers at both centers.

THE AMERICAN CITY, under the statesmanlike direction of Harold S. Buttenheim, its respected and beloved editor, has been more than a commercial trade publication for municipalities and people interested in municipal matters. As a journal it has always been sympathetic to new develop-

ments in the management of cities, in city planning, in municipal finance, in public works, in housing, and in the many other departments of city administration. It has been progressive and up-to-date and has encouraged better municipal housekeeping, management, and development through the years. Mr. Buttenheim and his staff have given liberally of their time, way beyond the call of duty and beyond any conceivable commercial advantage to their journal, to further the cause of the improvement of American cities.

On this occasion of the 40th birthday of THE AMERICAN CITY we at "1313" are glad to salute this outstanding journal, to wish it success and long life, and to hope for many years of continued cooperation with Harold Buttenheim and his excellent staff in the work they are doing.

COUNCILMAN

WALTER R. DEMMLER, ***Member of the Council of the City of Pittsburgh, Pa., writes:***

Among the many publications which reach my desk during the month, there is none which receives more careful examination than the monthly issue of THE AMERICAN CITY. Not only are the many articles about municipal affairs of interest, but the advertisements also receive consideration. I have been a subscriber to the magazine for many years and the same has received my continued and increasing interest.

I know that the other copies of THE AMERICAN CITY received in the City-County Building are of interest because different men have mentioned various articles to me.

FORTY YEARS AGO

The leading editorial of Vol. I, No. 1 of *The American City*—issue of September 1909—is reprinted on page 5 of this issue.

PARK SUPERINTENDENT

ROBERT E. EVERLY, ***Park Superintendent, Glencoe, Ill., writes:***

I have come to depend upon THE AMERICAN CITY magazine as a medium for an exchange of ideas in park and munipial administration. Rarely do I read one of its issues without gaining some new idea applicable to my particular endeavor. With its aid I also find I am able to keep abreast of the constant change and improvement in equipment and materials as a result of the advertisements appearing in its pages.

You and your co-workers are to be congratulated upon the high standard you have been able to maintain in the publishing of America's monthly municipal "bible."

CITY PURCHASING AGENT

J. M. PIERCE, ***Purchasing Agent, City of Wichita, Kans., writes:***

For many years I have considered THE AMERICAN CITY the best magazine of its kind covering municipal information. The news items and editorials cover actual experiences of officials in other cities. In other words, it serves as a clearing house for good ideas that are oftentimes very helpful to us.

I also rely on THE AMERICAN CITY for information covering advertisements of municipal equipment. Your Advertising Department certainly provides the magazine with very interesting and worthwhile information.

What Dayton's Municipal Government Thinks of THE AMERICAN CITY

BY AN interesting coincidence, while the foregoing symposium was in preparation, THE AMERICAN CITY received from Russell E. McClure, City Manager of Dayton, Ohio, an order for 32 yearly subscriptions.

Previously seven of the city officials were receiving the magazine regularly. These were the City Manager, City Engineer, Water Department Director, Sewage Treatment Superintendent, Park Superintendent, one of the City Commissioners, and the City Plan Board.

Beginning with the issue of July 1949, the City of Dayton is paying for subscriptions for the following list of municipal officials:

Mayor Louis W. Lohrey
City Commissioner Herbert L. Neth
City Commissioner Fred A. Speice
City Commissioner Merle P. Smith
City Commissioner John C. Csipkar

City Manager's Office

Clerk of Commission

Chief of Fire Division
Chief of Police Division
Division of Telegraph and Signals
Director of Service and Buildings
City Engineer
Street Superintendent
Building Inspection Superintendent
Airport Manager
Superintendent of Markets and Public Property

Director of Water
General Superintendent, Department of Water
Sewage Treatment Superintendent
Sewer Maintenance Superintendent

Director of Public Welfare
Health Commissioner
Superintendent of Correction
Superintendent of Parks
Superintendent of Recreation
Personnel Supervisor
Director of Finance
Purchasing Agent
Director of Law

Director, City Plan Board
President, City Plan Board, Miles S. Kuhns
President, Zoning Board of Appeals, Edward O. Wright

Police, Traffic Engineering, and City Transit Coordinated in Portland, Ore.

By DOROTHY McCULLOUGH LEE
Mayor
City of Portland, Ore.

HOW best to cope with the complex traffic and transportation problems facing municipalities is a major concern of every growing western city. Increased vehicular travel over narrow or poorly planned streets, a dearth of adequate parking facilities, and a need for proper freight routings and terminals are but a few of the matters demanding immediate action.

To secure desired results as quickly as possible, the City of Portland (the population of which was recently estimated at 428,000) has established all bureaus and agencies primarily concerned with traffic and matters related to traffic under the direct control of the mayor.

Under this reorganization, which went into effect the first of this year, the Bureau of Police, the Bureau of Traffic Engineering, the Municipal Court, the Portland Traffic and Transportation Commission, and the city transit routes and schedules are integrated in the Department of Public Safety. In Portland, the Mayor is also Commissioner of Public Safety.

Mayor Lee puts both *The American City* and the *Municipal Index* to good use.

When a One-Way Street Is Proposed

This coordination between the various departments dealing with traffic matters in the municipal government of Portland makes it possible to approach any traffic problem with harmony and direction.

For example, if traffic engineers discover, through a study of accident reports, volume reports, and an origin-and-destination survey, that traffic conditions are such that a one-way street would be advisable, they consult with the Mayor and the Captain of Traffic Police. The Traffic and Transportation Commission, through an appropriate committee, also investigates and reports to the city officials.

In this hypothetical case, the recommendations strongly favor adoption of the one-way street, and authorization is secured. But before the street is converted to the one-way principle, the public must be advised of the proposed action and the reasons for recommending it. This becomes the duty of the Traffic and Transportation Commission, whose committee on public information meets with traffic engineers and police.

The Public Information Committee, through its contacts with the press, the radio, various trade organizations, etc., supplies pertinent information in order that the public may be fully informed and understand the need for and the value of the project. With this type of public educational program, the Commission secures the support of the motoring public; and when this street is converted to one-way use, motorists are familiar with and usually accept the installation.

Patrolmen Carefully Briefed

The traffic patrolmen are carefully briefed by their Captain, who has been an active participant in the preliminary meetings, prior to adoption of the one-way street, and they patrol the streets with instructions to give courteous warnings to early violators. The Municipal Traffic Court Judge, an advisory member of the Commission, is familiar with the planning and after the appropriate warning period has expired, determines the penalty for violation with a much better understanding of the entire problem.

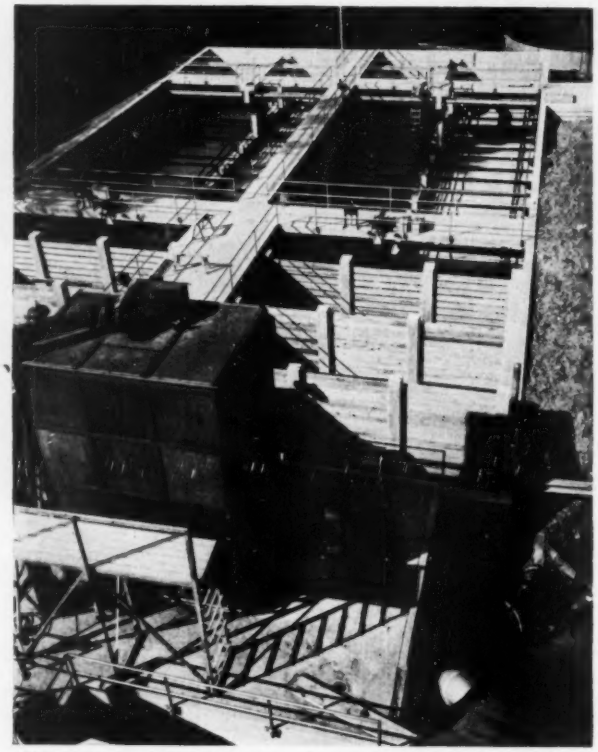
Much of this coordination is obtained through the clearing-house effect of the Traffic and Transportation Commission, which was established by ordinance last January. This body of laymen takes on the duties of two commissions which it replaced—the Traffic Safety Commission and the Transportation Planning Commission. It is composed of 11 members who serve without remuneration, representing the public, and several advisory members, including the Mayor, Commissioner of Public Safety, Commissioner of Public Utilities, the Commissioner in charge of the Bureau of Traffic and Transportation, the City Engineer, the Traffic Engineer, the Senior Municipal Judge, the Chief of the Bureau of Police, and the City Attorney, or deputies nominated by them. Other special consulting members may be called in without compensation.

Recommendations made to the City Council, after careful deliberation by the Commission, are an invaluable aid to the policy-making of the city officials. Eight committees within the Commission investigate traffic or transportation matters that come before the Commission. These committees are: the Engineering Committee, Law Enforcement Committee, Parking and Congestion Committee, Public Information Committee, School Safety Committee, Com-

(*Continued on page* 159)

ANNAPOLIS, MD.

Water Works Corrects Treatment Flaws



Workmen put the finishing touches on the aerator in the foreground and the new settling tank, before they go into service.

Adequate settling capacity and filter surface-wash sweeps put the Annapolis, Md., water-treatment plant into top-flight operation condition

PROBABLY the only gravity rapid sand filter plant in the world that has had to operate without a settling basin is now having that void in its plant corrected. This, among other improvements, is taking place at the Annapolis, Md., water works. The additional improvements include new well supplies, a second alternate raw-water force main, aerators, and chemical feed equipment.

Normally, Annapolis obtains its water from a small impounding reservoir supplemented by deep wells discharging into the reservoir. Surface water alone usually provides adequate supply of good quality in the winter. In the summer, the inadequate surface water source is supplemented by the wells. The use of well water complicates treatment due to an 8 ppm iron content and a carbon dioxide content of over 50 ppm. The normal demand for water at Annapolis is about 2.2 mgd, which has far exceeded the maximum that the surface supply can furnish. The already developed well sources had already been taxed to capacity to meet recent peak demands. A design capacity of 4.5 mgd is the basis of the present improvements.

Most authorities agree that on an average a rapid sand filter should remove no more than 10% of the coagulated floc in order to operate economically; the balance of 90% should be removed by the settling basin. At Annapolis, the filters have had to take out as much as 80% of the floc, and have had as high as 8 inches of sludge piled on the filter beds, in a matter of several hours. To complicate matters further, the filters had developed huge mudballs that made operation most difficult.

From an absolutely correct technical standpoint, the Annapolis plant had a settling basin. When it was designed it followed customary practice. However, engineering studies since its design have disclosed a more thorough understanding of settling basins. The Annapolis plant illustrates this. At top capacity its design was such that it encouraged short circuiting. The detention time in this super-speed settling basin was only 18 minutes when no sludge had collected. Even a small amount of sludge further reduced this detention period. This inadequate design resulted from the limited funds available some years ago when the filter plant was constructed.

If you can make your case that a basin providing that kind of delay is a settling tank, you will then have to label it as the basin with the world's highest velocity. In any case, a record of some sort has been broken.

With these problems in mind, the

Annapolis city officials called in the Baltimore consulting engineer firm of Whitman, Requardt and Associates for assistance.

To alleviate the serious problem of filtration immediately, a contract was prepared and quickly awarded to provide Palmer filter agitators. These have worked excellently in breaking up the super-sized mudballs and have been particularly useful in removing the huge accumulations of sludge that landed on the filter beds prior to the construction of the new settling basin. Their continued use has gradually eliminated the mudball difficulty.

Additional Water Sources

The engineering firm first tackled the problem of adequate supply. They recommended and supervised the construction of two wells, each having a capacity of 1,000 gpm. The wells have the important feature of cement lining between the casing and the inside of the drilled well hole in the ground. This prevents water from poorer strata from draining down, along the casing, into the aquifer being tapped. The well screen itself is gravel-packed to develop and maintain the maximum capacity.

The next problem was that of force-main reliability for the raw-water line. At present the city relies on a 16-inch cast-iron force main which has sufficient capacity, but if some emergency should take this line out of service, only the small clear-well volume would remain to supply the city. To overcome this fault, they installed a supplementary 20-inch force main for the 1,000 feet connecting the filter plant and the raw-water supply.

As mentioned before, well water and impounded surface water were mixed as needed in the reservoir. This resulted in varying proportions of each type with every rain storm and made proper coagulant dosage extremely difficult to determine. The piping from the wells has been rearranged now so that all well water, all surface water, or a known mixture can be pumped to the filtration plant. Since the well-water quality is constant, the coagulant dosage determination has been greatly simplified.

Aeration and New Settling Tank

Having these fundamental problems of raw-water supply solidly in hand, the engineers next turned to the purification plant. The first step was to revise aeration facilities so that iron and carbon-dioxide removal from well water would be improved. The plant had used a home-made aerator consisting of a wood structure built on top of a small suction well. They replaced this with a closed Permutit forced-draft up-flow-type degasifier that removes the excess carbon dioxide as well as precipitates the iron.

The location of the new settling tank was governed largely by the proximity of lime-feeding facilities. The well-known clogging of lime slurry lines has been minimized by the use of an open "V" channel on a straight grade from the lime feeders in the filter-plant building to the point of application at the influent end of the flocculation and settling tanks. The direction of water flow from the surface and reservoir and wells to the filter building would normally place the settling tank influent at some considerable distance from the filter building. However, to shorten the length of lime-feed channel, the inlet end of the settling tank was placed close to the filter building. This feature will greatly aid in filter-plant operation by eliminating one of the most common chemical feed troubles.

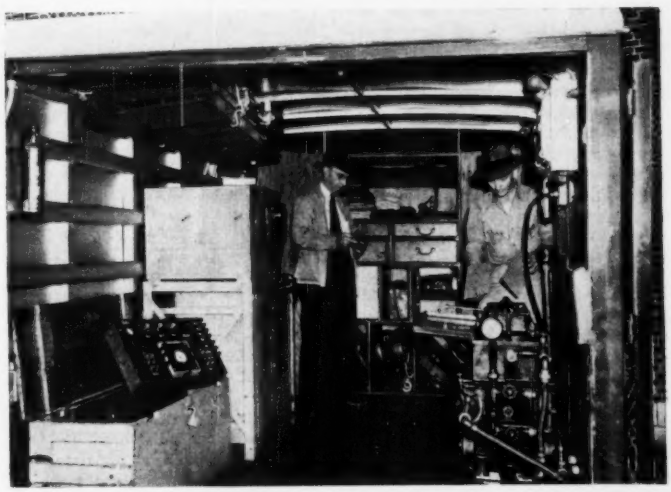
For flocculation and settling, the engineers designed a basin that retains the water for 4½ hours at design flow. With an eye toward low operating costs, they installed in the basins a Chain Belt mechanical sludge collector that makes the removal of sludge continuous and insures that the capacity will not be reduced by the accumulation of sludge. The high-iron-content well water had filled the former tank with sludge in several days and depended on by-passing during the manual removing of sludge. The design of the inlet and the outlet, as well as the general tank dimensions, makes short circuiting virtually an impossibility in the new tank.

In the filter plant other improvements have been made to facilitate operation. Previously the operators had to carry all the chemicals up from the basement two stories to serve the feed machines. In the new design a bucket elevator and screw conveyor do this work mechanically. Rate controllers have been installed on the filters to provide a high degree of operating control.

The water is prechlorinated as it enters the inlet end of the settling tank. This dosage is sufficient to aid materially in flocculation and settling. The water leaving the filters discharges into an open clear well, where lime is added for corrosion control. A cover for this clear well has been recommended, but sufficient funds are not available for that improvement at this time.

In developing the various water improvements, Mayor William U. Mccready has worked closely with Water Superintendent Edgar F. Donaldson to make the project possible. The Annapolis Water Company is further unique in that it probably has the only man-and-wife team in the operating fraternity. Superintendent Donaldson handles the general management of the plant, while Mrs. Donaldson holds the post of filter operator. The new plant and all improvements with the exception of the wells were constructed by Vanguard Construction Corporation of New York. George Eriksson was construction superintendent.

Specially Equipped Maintenance Truck For Jacksonville, Fla.



A rear view of the General Electric 1½-ton circuit-breaker maintenance truck and equipment recently put into service by Jacksonville's Electric Department. With a three-man crew, this equipment can be used on any type of breaker.

What Size Fire Engine Does Your Community Require?

In spite of slow deliveries until now, municipalities and the rapidly growing rural fire services have for four years been ordering and installing new apparatus at a rate never before reached. Authorities say it will continue for two more years at least. The result is many inquiries and top interest in types, design, specifications, contracts and tests. The purpose of this article, built up from a basis of material furnished by A. H. Gent, Engineer, Illinois Inspection Bureau, Chicago, is to satisfy some of this questioning.

SELECTION and purchase of fire apparatus takes place in various ways. One is based on attractive appearance and sales-representative appeal, another on the product and reputation of the manufacturer, his ability to service, and the testimony of satisfied purchasers. A third is by deals which often result in a disadvantage to some of the parties concerned. Finally, there is the competitive bid based on adequate specifications.

"Suggested Specifications on Municipal Fire Apparatus," published jointly by The National Board of Fire Underwriters and the International Association of Fire Chiefs, gives standard basic requirements which, when supplemented by the good ideas of the particular fire department, produces an adequate specification. Such items as pump capacity, length of ladders, small equipment, tank capacity, type of pump and motor, location of devices, body design, ladder material, etc., necessary to the given community are left to each purchaser. The chief can thus increase the cost of the apparatus as much as his conscience allows. On the other hand, he can hold down costs by sticking to stock standards. The point is that these specifications are neither rigid nor complete. They must be filled in and supplemented by the municipality.

The instructions to bidders should state the information required with the proposal, such as detailed description of the apparatus to be furnished, availability of spare parts and repair service, manufacturer's ability to produce fire apparatus, and characteristics of important unit parts. Upon award, a written contract should be entered into, covering full details of apparatus, equipment, devices and services proposed under the specifications, and the manufacturer's guarantee (for one or more years) against material (not electrical or tires) failure. Thus, on delivery, all features and acceptance tests can be checked for compliance with written provisions. "He said" or "she said" are out.

In general there are two types of apparatus being manufactured today. There are the conventional pumping engine of 500, 750, 1,000, 1,250, and 1,500-gallon capacity, and the ladder trucks, aerials and squad units, all of which are made by fire-engine manufacturers. The other type of apparatus occurs where the town purchases a chassis and requests bids for installation of the equipment.

Where pumpers are sold on the basis of "purchaser furnish the automobile chassis to the manufacturer" for final assembly into completed apparatus, the agreement should fully specify the responsibility of both parties. Otherwise, there is none. When the chassis is received by the manufacturer he should assure himself that it is satisfactory and should then make formal written acceptance to cover his proposal for furnishing a complete fire truck, including chassis, pump, body and equipment. He should be responsible for the delivery of a complete fire truck rather than for the equipment hung or mounted on a chassis. Not all manufacturers accept this view. Those who do not, state in their contract that the guarantee of the truck manufacturer will apply to the chassis.

Some manufacturers furnish a delivery engineer to instruct the local men in the operation and care of the new machine. Others allow only enough time for meager instructions and a money collection. The better way can mean a lot at time of fire. This feature should be *specified* in the contract so that suitable instructions will be required for the men. Another *requirement* is illustrated maintenance and operation literature about the specific machine, and based on the controls furnished with that machine.

Fire apparatus should be "load rated" throughout to insure dependability. The gross weight distribution on front and rear axles, springs, frame sections must be limited to their load ability. The promiscuous overloading of apparatus beyond rated unit ability can be disastrous. For this reason precautions against oversize motors are

set forth in all the basic specifications.

Ability to maneuver should be given recognition so that narrow and crowded streets can be traversed without difficulty. Apparatus for a rural area may require road clearances, apparatus width, height, wheel-and-tire sizes and arrangements vastly different from apparatus for wide paved streets.

Because no two cities or fire chiefs are alike, no fire apparatus manufacturer makes a fire truck on an assembly line. Each must determine with the aid of the local officials the size and design of truck needed, simplify these ideas, and make a truck to fit them.

Minimum Pumper Requirements

For most municipal protection, engines should be of not less than 750 gpm capacity and Class A as specified below. While for rural or suburban work, where water supplies are limited, pumpers down to 300 gpm are used, it is recommended that 500 gpm be the minimum capacity specified. While the mere idea of rural or suburban areas with scattered houses suggests small-capacity apparatus, the actual problems often call for 750 gallons or larger. In most cases of this category, hydrants are a long way apart or absent. The available water supply may be half a mile away. It is not to be expected that a 500-gallon unit can meet such situations. At the same time it must be borne in mind, and the fire chiefs know this, that pumping engines put out by major manufacturers far exceed their rated capacities. For instance, in a recent test a rated 500-gallon pumping engine pumped 911 gpm using 1¼-inch hand line, 118 pounds nozzle pressure, 150 pounds pump pressure, at 1,625 rpm.

In discussing minimum pumper requirements, it should be recognized that pumpers of 1,000 gpm and larger, up to 1,500 gpm, are available as standard sizes. Even the smaller city loves these engines. But the thousands of little towns have to consider the advisability of buying these capacities in two units. It is just as easy to wreck a big truck as one of half the capacity. Then there could be two simultaneous calls in opposite directions. Many fire districts in big cities are so many small towns. In New York, for instance, the average run is 1½ miles and the average speed is 35 mph. Pumping engines are divided into two classes of pumpers having the following characteristics:

"A"

Rated capacity at 150 psi net
70% of capacity at 200 psi net
50% of capacity at 250 psi net

"B"

Rated capacity at 120 psi net
50% of capacity at 200 psi net
33⅓% of capacity at 250 psi net

The Class "B" requirements are recommended as minimum pumper characteristics. Assurance should be required from the manufacturer that the 12-hour test listing procedure of the National Board of Fire Underwriters will be met.

All fire apparatus should have a run-in test at the plant of the manufacturer prior to delivery and final acceptance tests. The minimum should be four hours of pumping at the various capacities and pressures specified. Non-performance of this test should be grounds for non-acceptance. Some of the difficulties due to apparent lack of sufficient factory run-in period have been costly to the manufacturers. Actual cases include defective pump transmission lubrication, resulting in complete pump-case rupture, lack of rated motor power resulting in failure in delivery of required capacities, inadequate valve performance, a complete inability of the pump to be turned by the engine due to clearances, excessive pump vibration.

Design of the entire machine, so that repair work can be done without removal of the heavier parts, is desirable. All of the moving parts should be capable of easy removal.

Spare Parts and Tests

Ability to get spare parts is of prime importance. Fire apparatus is retained in service for a quarter century or more, and the ordinary parts needing replacement and repairs must be obtainable throughout its life. Service obtainable from the manufacturer is a big factor. Body design permitting unit replacement of fender, hose body parts, running boards, skirting, steps, cabs, etc., should be required. Complete welded design is much less desirable.

Competent and adequate brakes are a necessity. The specifications should require that the apparatus shall be capable of complying with the state laws covering brakes of heavy-duty trucks. Some cities, indeed, are insisting on air brakes on their new fire apparatus, considered by many to be a coming thing. In smaller places, however, and among the volunteer companies, weeks pass without fire calls or the engine turning over. Then the whistle blows and the man closest to the fire house jumps into the truck and roars out the front door—and lucky if he doesn't go through the building across the street. It is important in communities of all sizes that fire apparatus be equipped with adequate brakes.

High road speed is not too desirable in fire equipment in congested areas. The larger and heavier pieces of apparatus located in the downtown sections of cities certainly are not used at speeds in excess of 35 or 40 mph. Of greater importance than speed for city operation is the ability to accelerate quickly. Apparatus should slow down for street crossings and quickly pick up and get back to normal speed. Of vital importance in hilly territory is the proper selection of a rear-axle ratio. Many communities are located in hilly or mountainous areas, and the size of the gasoline engine specified should be large enough to meet these local road conditions of hills, floods, ice and snow. The gasoline engine should be large enough to permit the apparatus to be capable of pumping the rated capacity of the pump without exceeding 80% of the motor speed at the peak of a certified brake horsepower curve of the motor, and without exceeding 90% of the peak speed at the 200 and 250-pound pressures.

Pumping Specifications

To assure excess power for pumping some specifications require (1) that the net brake horsepower curve of the engine show 20% more power throughout all speeds than required by the pump; (2) that actual short-period delivery of 10% more water than required at rated capacity pressure, 200 pounds and 250 pounds, be required of all pumpers as evidence that the motor is developing full power and that liberal pump design has been used.

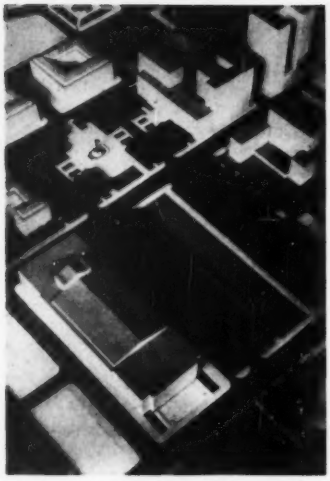
Pumping and road tests should be specifically set forth and carried out by the purchaser. Where proper test procedures are specified and adhered to, more care will be used in fabrication by the assembler or builder.

Walkie-Talkies For New York Firemen

WALKIE-TALKIE FM two-way radio units are now part of the equipment of Rescue Squads 1 to 5 of the 25th Battalion, Marine Division of the New York Fire Department, of the North River. They are the latest addition to the Department's radio system, built up by Acting Deputy Chief Thomas P. O'Brien, who is in command of the Bureau of Fire Alarm Telegraph.

Since it weighs only 12 pounds, the Chief's aid carries the set by shoulder-strap or hand, the receiver serving as handle. The Chief hears all incoming messages through a small ear-piece of the hearing-aid type. The sets operate on 33.4 megacycles and are powered by six 1½-volt A batteries in parallel and three 67½-volt B's in series.

With a radius of three miles, these portable Motorola units are useful in operations on high buildings and bridges, at woods and grass fires, and from island to shore. They were first used to keep the Battalion Chief informed in the case of a refrigeration leak in the basement of a hospital.



Model of proposed Mall development with the new college plant.

Coordinating A College Building Program With a City's Civic Center

Searching educational and urban problems faced in Cleveland College plans

By HERMANN H. FIELD, A.I.A.
Director of Building Plans
Cleveland College of Western Reserve University

A DOMINANT feature of downtown Cleveland is its two interlocking, but quite dissimilar, open areas. Public Square, with its Union Terminal group and its assortment of contrasting older structures, is the center of Cleveland's commercial life and the turntable of all its motor vehicle, transit, and railway traffic. The pendant piece to this square is the Mall, Cleveland's still partly dormant civic center. It touches the busy Square at one corner and sweeps down in an unbroken expanse of 18 acres to the bluff overlooking Lake Erie. As conceived by Daniel H. Burnham at the turn of the century in the aftermath of the Chicago World's Fair, this Mall was to be a bold esplanade or gateway into Cleveland's commercial center from a railway station built against the lakeside bluff, with the two sides and opposite end lined by civic buildings.

Over the intervening years, one side and one end of the Mall have been completed in accordance with the original plan, providing a city hall, a county courthouse, a public-auditorium and exhibition-hall complex, a Board of Education building, a library, and a federal office building. But the excellently conceived gateway concept of the lakeside terminal was doomed in the early '30's by the erection of the Union Terminal at the farthest corner of the Public Square. This abandonment of the gateway concept left the Mall high and dry in the scheme of things downtown, and the lakeside end, originally intended for the terminal, and the long west side are still uncompleted. Consequently the Mall has become neither a real pedestrian park, nor a recreation area, nor a dissipater of downtown congestion, and its value at present, in relation to the big investment in civic improvement it represents, is very limited.

Members of the American Society of Planning Officials who will visit Cleveland for the National Planning Conference at the Hotel Statler October 10-12 will have an opportunity to examine and inspect some of the progressive Cleveland planning projects, of which the Cleveland College Building Program, here discussed, is an outstanding example.

Publication of this article in the Fortieth Anniversary Number of THE AMERICAN CITY derives special significance from the fact that Cleveland's civic-center plan was one of the first to appear in this magazine. The March 1912 issue of THE AMERICAN CITY contained two illustrations showing the "Group Plan of the Public Buildings of Cleveland, Ohio," and "Plan for Fountain at End of the Mall, with Gardens, Terraces, Formal Trees and Reflecting Pool."

Few cities have had the foresight to assemble such a large open area in the heart of downtown congestion. At the same time, Cleveland and its alert City Planning Commission are increasingly concerned with finding a way to transform this partly stillborn project into a real community asset. A Mall Committee has been appointed and, simultaneously, distinct possibilities have arisen for completing the buildings along the undeveloped west side of the Mall. The current problem is typical of that of many civic-minded plans—how to adjust a rigid monumental layout of an earlier period to the building and urban-planning concepts of today and tomorrow. By today's reasoning, the uniform and peripheral enclosure of this open space along its four sides as originally visualized appears to have considerable limitations. Similarly, the heavy masses of the already completed buildings on two sides, with their uniform skyline and classical accoutrements, are unlikely to lead to present-day utility if their precedent were followed in building on the west side. This reasoning leads to questions such as the following:

- What building mass or height controls, and what other design restrictions, should be exercised to relate new buildings to the old, and to permit growth of the Mall on the basis of present and future needs?
- Should the rigidity and dominant axial symmetry of buildings, planting, roads, and sidewalks be retained and emphasized further in developing the west side?
- Should the Mall be broadened from a monumental island into a downtown control area which could help in the redevelopment of the blighted blocks west of the Mall, allowing its openness to filter through into areas which other-

wise will be relegated to the shadows behind the fortress-like continuity of the building line?

- How should the open spaces of the Mall be developed to bring life into it and give it attractive human scale?
- Should the now tenuous contact between the Public Square and the Mall be opened up further to help pump life into the Mall?

New Construction Planned

Two projects being planned for the west side of the Mall bring all these questions into immediate focus. One is a county office building toward the lake end of the Mall; the other is a new downtown university center to house Cleveland College at the opposite, Public Square, end of the west side. The middle area between the two may later be assigned to a state office building. Architects for the county building are Garfield, Harris, Robinson, and Schafer, and in the case of Cleveland College a collaborative design is being developed by the college planning office together with the same architectural firm, thus assuring an integration of the design at both ends of the Mall.

The planning work for the new college plant has been under way since early in 1947, and is in itself an interesting experiment in trying to achieve a truly contemporary solution to a problem with little constructive precedent. Cleveland College, the downtown center of Western Reserve University, has an enrollment of about 8,000 students, of whom 2,000 are regular undergraduate credit students and the rest part-time students following a wide program of adult continuing education. The college overflows from its Main Building on the Public Square into a collection of old buildings never intended for educational purposes. Unlike other parts of Western Reserve University, located on a suburban campus, Cleveland College's function as an urban, primarily adult center, ties it intimately into the life and communications of the downtown area. This necessitates building in a relatively high-cost

Airview of downtown Cleveland at the junction between the Mall and the Public Square. The white line marks the site selected for the new college plant.

area on a limited site without the open space and possibilities for decentralization of the campus, which leads inevitably to a multiple-story single-plant institution.

This poses a design problem of potential interest to many urban universities and, in view of the importance of this problem locally and nationally in the education field, Western Reserve University has regarded the planning of this new plant as a pilot project. An integrated research and planning program covering urban, educational, technological, and building-design aspects was accordingly authorized and a director for this program appointed late in 1947. The main phases of this program are briefly outlined below:

1. *The College and Its Community.*—An educational market analysis of present and further services and needs in higher education for the greater Cleveland area, superimposing on this the general national trends in enrollment and educational method, especially in the field of adult education.

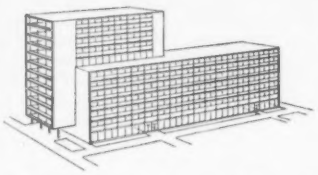
2. *Institutional Research.*—An examination of Cleveland College operation as part of the University with an evaluation of educational objectives, economic factors, and space needs.

3. *Choice of Location.*—The relative factors of land values, ratio of floor area to site area, the quality of public-transit access from tributary areas and availability of parking, the proximity of other Cleveland educational and recreational services, the stability of the neighborhood and its adaptability for college operation, and finally the degree of openness attainable in the new plant's immediate surroundings. It was felt that the new plant should inject a positive element into downtown redevelopment as an expression of its close service relationship to the community.

4. *Planning in Time.*—Because of financial limitations, the new plant must be built in a series of four stages. This is obviously more complicated in a single structure than in a decentralized campus layout and is made even more difficult by the necessity of integrating new structure with present owned and rented space at each stage.

5. *Technology and Engineering.*—Generally buildings for higher education still suffer from a bad inheritance of monumentality and ill-conceived traditionalism. As a result we have the paradox of education, which is constantly growing and changing, weighed down by a physical environment which does exactly the opposite and prides itself on the purity of its archaic pedigree. Today's building technology, with its materials, equipment, and environmental controls, provides the means, on the other hand, for truly contemporary solutions that will stay in stride with present and future educational needs. The multiple-story plant, while increasing the design difficulties considerably, also offers wide opportunities for full utilization of technological advances.

These studies have crystalized into a clear-cut preliminary design. With working drawings to be started shortly, construction of the first stage is scheduled for the summer of next year.



Proposed college plant—shape diagram.

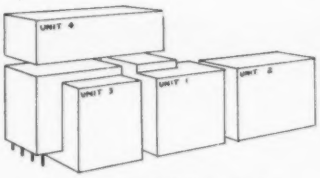


Diagram of building stages.

As indicated in the illustrations, the site selected for the college after elimination of four alternate downtown locations is a 350-foot-long strip, with an area of 35,000 square feet. It lies along the west side of the Mall from Public Square to St. Clair Avenue, which cuts across the middle of the Mall. The present Cleveland College Main Building occupies the Public Square end of the site, with its auditorium at the center. An old loft building, recently acquired by the University, occupies the rear third. It is planned to build in four stages, with approximately 90,000 square feet of gross floor area for each of the first three units and 50,000 square feet for the final expansion reserve.

College Will Be a Link Between Square and Mall

The completed plant will have a long seven-story section running along the Mall frontage and related to the existing Mall building height of about 90 feet. Over the front half and projecting beyond it toward the Public Square, a narrow setback tower section will rise another five floors. Its shape and height will, in contrast, be related to the buildings on the Public Square which it faces. Thus it is visualized that the college will become a link, forming a transition between the dissimilar Square and Mall. To bring this out further, the whole building is cut back o. the Public Square at ground level into a deep arcade which opens a vista between the two areas. This opening up of the junction point between Square and Mall is further strengthened by a setback on the Mall wing some 30 feet from the Public Square building line.

The building stages will follow a sequence in which the first unit will be erected in 1950 in the middle third of the site where the low auditorium now stands. This unit will primarily contain the vertical circulation and mechanical core for the whole future plant. The second piece will be added where the old loft building now stands; the third unit, which will complete present needs, will replace the present Main Building facing the Square. For future expansion, a final fourth unit will be provided by adding four further tower floors over the eighth-floor penthouse provided by the earlier stages.

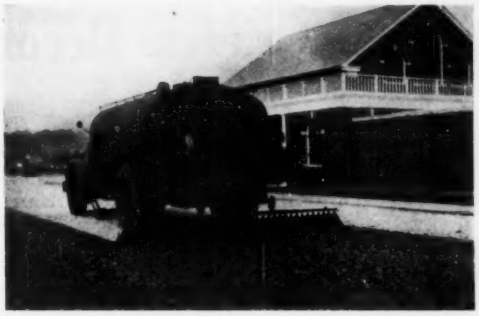
Basically it will be a loft-type building, with few fixed elements aside from the core. Floor space will be adaptable to change over the years with a minimum of cost, by means of flexible planning of the layout, the walls, utilities, and circulation. This is necessary not only to reduce the natural tendency toward obsolescence, but to allow for temporary assignment of space during the transitional stages. The result is a design that must be adaptable to stage-by-stage changes as well as possible educational changes and growth or shrinkage of operations.

From this brief survey it will be seen that the planning approach at Cleveland College assumes a continuity in the planning process in which the building is an integral part of the wider city environment and of the changing educational pattern. It is hoped that this approach will produce a much more rewarding result, both for Cleveland and for Western Reserve University, than would the traditional limitations imposed on the problem. This large college operation along the Mall will inevitably infuse into it some of the activity associated with a campus. It will encourage a new approach to the open-space planning toward informal citizen relaxation and recreation.

Gainesville Master Plan

CHURCHILL-FULMER Associates, architects and city planners with offices in New York City, have been awarded the commission to develop a master plan for Gainesville, Fla., the seat of the University of Florida. The plan, which will take about a year to complete, will include studies of the economic background of the community, traffic and transportation problems, development of the business district, parking, recreation, schools, and utilities growth and expansion. Close cooperation with the University's School of Fine Arts department of architecture, under Dean William T. Arnett, will be maintained.

This Caterpillar bulldozer levels a 5-inch layer of rock for base-course construction at Bar Beach parking lot.



Hot asphalt of 85-100 penetration is applied by this Littleford distributor at 1½ gallons per square yard.

NORTH HEMPSTEAD, N. Y.

New Parking Lot Can Handle 3,000 Cars Daily

Major improvement serves township beach with 40,000 square yards of parking area

ONE of the largest parking-lot improvements to be built in the East this year was completed last spring by the Town of North Hempstead on Long Island, N. Y. The new construction gives 40,000 square yards of parking area to Bar Beach, owned by the town.

Bar Beach had a smaller parking lot that had been used in previous years. However, it had become uneven and needed resurfacing badly, so town officials decided to give it a general overhaul and increase its size.

The work, set up by Town Engineer Albert K. Piloff and Superintendent of Highways Winfred L. Phillips, involved grading the area; after grading, the subgrade was given a prime coat of Texaco medium-curing cutback asphalt #1 at the rate of ½ gallon per square yard. The entire area was then covered with a layer of 1½-inch stone to a compacted thickness of 5 inches. Ten-ton Buffalo-Springfield rollers compacted this stone base. On this was applied a coating of Texaco asphalt of 85-100 penetration at the rate of 1½ gallons per square yard; following this, ⅜-inch stone was spread at the rate of 24 pounds per square yard.

Two-thirds of the parking area has received a 2-inch wearing surface of the plant-mix type. For this purpose, Colprovia was employed.

The beach has a total of 350,000 admissions a year. On peak days the parking area must handle more than 3,000 cars. The work came under the general supervision of Hartford Gunn, Town Supervisor. The cost of the improvement is being met out of current funds.

Barber-Greene spreader applies 2-inch wearing surface.

Two passes with Buffalo-Springfield roller finishes job.

Third-Graders Become Junior City Planners

Handsomely illustrated textbooks and a wealth of other teaching materials, prepared especially for the San Francisco public schools, introduce the subject of urban redevelopment to the eight-year-olds

By MEL SCOTT

SAN FRANCISCO public schools are making educational history with a community-study project that not only acquaints young citizens with their city as it is today but gives them a vision of what it can become through a vigorously supported city planning program.

Dr. Herbert C. Clish, Superintendent of Schools, and Dr. Harold Spears, Assistant Superintendent in charge of Elementary Education, have placed in the hands of San Francisco's third-grade teachers the most comprehensive set of teaching materials yet developed for the study of an American city. Besides six generously illustrated textbooks, each on a different aspect of the city by the Golden Gate, the instructional materials include sets of study prints, eight film strips, sound transcriptions, a teachers' manual, and teachers' packets of reference materials.

"We are satisfied that we have provided even more material on San Francisco than the most ambitious teacher could use in a school year," Dr. Spears declares.

In San Francisco, as in many school systems throughout the nation, third-grade social-studies teaching emphasizes the community. San Francisco school officials believe that the third grade is the development level at which the child is ready to understand and to appreciate living in San Francisco and the nine-county Bay Area of which it is a part.

The unique feature of the new textbooks is their emphasis on the city's potentialities for future development. *San Francisco Today,* first book in the series, is probably the first elementary school book in the United States to introduce the subject of urban redevelopment to eight-year-olds.

"Some parts of our city are growing old," the book points out. "They were built long ago. Many of the houses are too close together. Some rooms get no sunlight and are dark. There is no space in the neighborhoods for playgrounds. The children play in the streets and alleys.

"Some day most of the buildings in these old neighborhoods will be torn down. New neighborhoods will be built.

"The new buildings will get plenty of light and fresh air. There will be parks and playgrounds for children and grown-ups. The streets in these new neighborhoods will be safe."

The book closes with an illustration depicting families enjoying life in a redevelopment project while wrecking crews demolish deteriorated dwellings in a nearby blighted area.

"Urban redevelopment" is introduced in the first booklet in the series.

Neighborhood Units and Transportation

At Home in San Francisco, fourth book in the series, presents the concept of the city as a group of related community areas and describes characteristic features and housing in each of the twelve communities. It also lists the essential features of a good neighborhood (school, playground, shopping center, church, safe streets), tells how various city departments are cooperating in creation of the Sunset Community Center, and informs small readers about the functions of planners:

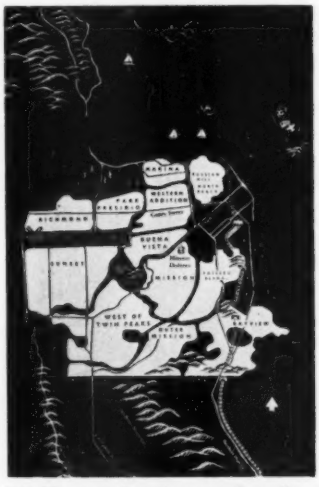
"They make maps and plans to show how the city looks today and how it could be improved. Their plan for changes in the city is called the Master Plan. The people of the city will help to decide the Master Plan. . . . Good planning means better houses and streets. It means better health and safety."

In and Out of San Francisco, second book in the series, deals with transportation. It not only familiarizes children with the many forms of transportation that serve San Francisco; it points out that "city planners are studying ways to help traffic move faster" and have already helped the city to get new motor coaches and trolley buses.

Need for a playground in each of the 98 neighborhoods in San Francisco is stressed in *Fun in San Francisco,* another of the text books.

Early San Francisco and *Work in San Francisco* complete the series.

To create in children an awareness



"At Home in San Francisco" awakens children to neighborhood planning.

San Francisco's facilities for recreation are described in this booklet.

and an appreciation of the contribution of many nationalities to San Francisco's cultural development, the texts point out that "people from all over the world have helped to build San Francisco." Covers of two of the textbooks show interracial groups at play.

"In America people from many lands work together to make better communities," the concluding paragraph of *San Francisco Today* states.

Film Strips Also Used

Film strips supplementing the textbooks show the port, cities and towns around San Francisco Bay, the Civic Center, various neighborhoods, types of streets, recreational activities of children, workers in San Francisco industries, and forms of transportation, including San Francisco's famous cable cars and the last of the ferry boats.

Thirty-six study prints depict historical events, Bay Area landmarks, views of present-day San Francisco, housing projects, and freeways.

One of the sound transcriptions developed by Morris Williams, Supervisor of Audio-Visual Aids, brings right into classrooms the bark of seals at Seal Rocks near the Cliff House, the dingding of cable car bells, fog horns, steamship whistles, the rhythmic puffing of steam engines, and the roar of the wind as it sweeps over Twin Peaks.

The immediate effect of plunging young San Franciscans into an intensive study of their city has been to create an insatiable desire to know every part of it first-hand. Teachers have been busy all year taking pupils on bus trips around the city, and on Sundays parents have been escorting their offspring on boat rides around San Francisco Bay and taking long walks with them through Golden Gate Park to see the fascinating places mentioned in *Fun in San Francisco*.

Classroom walls are ablaze with juvenile art portraying San Francisco's great bridges, workers constructing new housing projects in the Lake Merced area, model neighborhoods, schools that are nothing if not contemporary in design, and streamlined public-transit vehicles.

One enterprising class constructed a large topographic map of San Francisco from a small contour map furnished by the City Planning Commission. The relief map serves the twofold purpose of enabling pupils to learn the names and locations of the 30 or more hills in San Francisco and to understand why this city of magnificent views and limited land area has complex circulation and housing problems.

In developing varied teaching materials on San Francisco, the school department enlisted the aid of governmental, civic, philanthropic, and private business organizations.

T. J. Kent, Jr., Director of Planning for San Francisco until July 1948, and now chairman of the University of California's new department of city and regional planning, provided the services of the City Planning Commission's well-known staff artist, Emmy Lou Packard, to design the six textbooks and assigned Sydney H. Williams, Chief of the Master Plan Division, to supervise work done by the Commission to further the project.

A committee of the San Francisco Planning and Housing Association, headed by Mrs. Morse Erskine, contributed valuable research material on early San Francisco history, the operation of the port, and local industries.

Public and Private Agencies Help

Scores of public agencies and business firms provided information and photographs for books, film strips, and study prints. Among them were banks, newspapers, manufacturing concerns, federal agencies, the departments of the San Francisco city government, chambers of commerce throughout the Bay Area, tourist bureaus, trade publications, steamship companies, air lines, bus lines, and railroads.

The writer, in the capacity of consultant to the school department, produced film strips, selected study prints and book illustrations, advised on the content of textbooks, and provided background information for an editorial committee of teachers under the chairmanship of Mrs. Edith Cochran, Principal of the Commodore Sloat School. This committee was chiefly responsible for preparation of the copy for the textbooks, under the direction of Dr. Spears.

From "In and Out of San Francisco," which stresses transportation.

The Rosenberg Foundation of San Francisco made a substantial grant to the San Francisco schools to defray the greater part of the cost of printing the texts.

Other Cities Want Similar Elementary Aids

School teachers in neighboring Bay Area communities and in other parts of California enviously contemplate the attractive instructional materials available to members of their profession in San Francisco. A committee of curriculum experts in other Bay Area counties is now thinking of developing similar instructional aids on the entire Bay Area. Los Angeles, to the south, is hard at work on elementary texts on that city.

City planners in other California cities have been impressed by the cooperation between San Francisco planners and educators and are hoping to develop the same kind of teamwork in their own communities.

Meantime, Superintendent Clish and Dr. Spears are reaping letters of congratulations from teachers colleges and universities throughout the United States, from other school administrators, and—high praise indeed—from some commercial book publishers.

The San Francisco that Mary and John, now aged eight, start taking over about 1962 should be better planned than the present metropolis. Mary and John are educating their parents as to what improvements should be made right now.

SIDNEY, NEBR.

Solves Its Sewage Disposal Problem

New plant with trickling filter replaces overloaded Imhoff tank discharging into a dry creek bed

By VERNE LIVINGSTON
Manager of Utilities
Sidney, Nebr.

IF YOU were to ask a resident of Sidney, Nebr., what was the most-needed improvement made by the city in the past several years, he would probably tell you that it was the new sewage-treatment plant.

Sidney lies in the panhandle section of Nebraska. It was built on the site of Old Fort Sidney where soldiers were stationed to protect the builders of the Union Pacific Railroad, as well as the early settlers. Some of the officers' quarters still stand and are being used as residences. The old powder house, the rifle range, and the race track used by the soldiers may still be seen by those who are interested in the past.

Looks to Future

However, except for mild curiosity, most of the people of Sidney are not interested in the past nearly so much as they are interested in the future. Sidney owns its own light plant and its own water system; most of its wide streets are paved with concrete or oil; its two beautiful parks and band shell are equal to, or better than, most metropolitan cities. All of this shows that the people are not only interested in the future but are actively building a city which can be enjoyed by themselves as well as the generations to come.

Three primary sewage-treatment plants had been built on the present site and each became overloaded in a short time by the rapid growth of the community. In 1931, when the last of these, an Imhoff tank, was constructed, it was built for a town of 3,300 persons. The population now is nearly 5,000. Even if primary treatment were sufficient, this equipment could only half do the job required. Until 1946, the creek, into which the effluent of these plants was run, averaged from three to three and one-quarter second feet of water. In 1946, this stream dried up except during flood periods. The grossly overloaded treatment plant was emptying much raw sewage directly into a dry creek bed to flow for miles down the valley. This presented a health menace not only to the people of Sidney, but to the surrounding territory.

War Accelerates Need

Although the need was recognized earlier, the situation became grave when in 1942 the Sioux Ordnance Depot was built adjacent to Sidney and nearly 200 new homes were built, as well as 175 temporary dwelling units erected by the Federal Government. It was then that a consulting engineer, Robert Fulton, was called in to prepare an engineering report of the situation and a request was made to the Federal Government for aid in building a sewage-treatment plant which would relieve the situation.

The request for federal cooperation in the project was denied, and for the duration of the war nothing could be done. However, with the continued growth of the city and the drying up of the creek, the situation was indeed serious. The original estimates were revised by Fulton and Cramer on March 1, 1947, and on October 28, 1947, a contract was let to the Chambers Construction Company of Lincoln to build the present plant. Special instructions were given the engineer to design the plant so that future expansion could be made with the minimum of expense.

Plant Design

The plant is of the trickling filter design. Mechanical equipment for the entire plant was furnished by the Infilco Company of Chicago, Ill.

The sewage passes first through a vortex-type grit remover. This is equipped with an auger screw in the bottom that removes the heavy material. A chain-link elevator transfers this inorganic grit out of the tank. An agitator in the grit chamber scours the grit so that the organic material will float free and be removed with the balance of the sewage.

The sewage then proceeds to the primary clarifier. Its scraper arms remove the settled solids to a center well where it is pumped to the primary digester. A skimming arm in the primary clarifier removes the floating solids, grease, and oil by means of an automatic trip valve. Then these are also pumped into one of the digesters. The final clarifier is similar except for the skimming arm.

The rock filter is filled with red quartzite rock. It is 130 feet in diameter and 6 feet deep. The double-arm distributor is now distributing about 900 gallons per minute on the filter media. About half of this is fresh sewage and the other half has been recirculated from the filter effluent.

There is one sludge pump, and it handles sludge from both primary and secondary clarifiers. It is manually operated. There are two sewage pumps, connected in such a manner whereby if one pump is insufficient, the other will cut in to handle peak loads.

Imhoff Tanks Used for Digesters

In order to save as much in expenditure as possible, the Imhoff tank was used as the lower part of the present digester. The inner bins and baffles were removed, and the 25-foot-deep tank was extended upward 12 feet with new baffling arrangement installed. At present, the digester is sufficiently large to accommodate the city for several years. If and when enlargement is necessary, the digester can be capped and the gas generated by digestion used for heating in the digester chamber, thus almost doubling the capacity of the present structure.

The completed plant was put into operation November 11, 1948. The total cost, including engineering, financing, advertising, etc., was $165,768.

The Board of Public Works, together with the City Council, worked for two years studying the various meth-

ods of financing a project of this type.

Sewage-treatment plants as well as any other extensions to the sewer systems in Nebraska had been financed through general tax levy or special assessment taxes. Many states had made provision whereby the users of a sewer system paid for this privilege by means of a sewer-service charge based on the amount of water and sewage discharged into the system. This seemed most fair, as in many cases the large property owner was not the one who was making it necessary to extend the sewer facilities, yet under general tax levy he would be the one who would pay the largest portion of the expense. Through the cooperation of the State Legislature, a law was passed permitting the municipalities of Nebraska to pay the costs of plant construction and maintenance by means of a sewer-service charge.

The method adopted by the City of Sidney is a combination of the old and the new. Part of the money is raised by a sewer-service charge and part by general tax levy.

Lawn Sprinkling Considered

Since irrigation of lawns and trees is a necessity in this part of the country, it was not desirable to levy any charge which might endanger the beauty of the city. For that reason the sewer-service charge is based on the amount of water as registered through the customers' water meters during the months of December, January, and February of each year. An average per month is established to which the following rate is applied:

Sewer Service Charge Rate:

First 3,000 gallons used per month	$1.00
All over 3,000 gallons used per month—per thousand	.10
Minimum bill	1.00
Commercial consumers using 100,000 gallons or more per month—per thousand	.05
Minimum charge	6.00

This then becomes a flat charge per month for the following 12 months, when a new average is taken and a new charge established.

This will raise approximately 80% of the funds needed to operate and maintain the plant and retire the indebtedness in twelve years. The balance is to be raised by general tax levy.

In order to keep the operating costs down, special effort was made to design a plant which could be operated by one operator, utilizing, wherever possible, automatic devices and natural gravity flow.

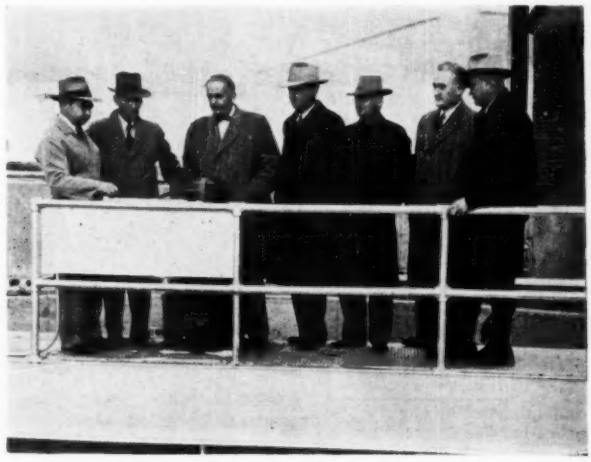
New plant ready for action. At left, the Griductor; center, the primary clarifier and trickling filter; and right, the secondary clarifier and digesters.

Board of Public Works

The sewer system, as well as the water and light utilities of the city, is managed by a Board of Public Works appointed by the City Council. This board is headed by the former mayor, Dr. R. E. Roche, who has for many years devoted much of his time to the betterment of the city.

The people of Sidney are justly proud of this new addition, which will permits wild ducks and fish, as well as farm animals, to use again the stream which flows through the valley on its way to other municipalities and communities and which will mean that they will not be responsible for any possible contamination which it might contain.

The plant operator, Charles Welton, takes over his new responsibilities.



Here officials are inspecting the new plant. Left to right: Verne Livingston, Manager of Utilities; N. W. Ladegard, Secretary of Board of Public Works; Dr. R. E. Roche, Chairman of Board of Public Works; G. V. Doran, Member of Board of Public Works; E. L. Uptegrove, Member of Board of Public Works; Dr. C. B. Dorwart, Mayor of Sidney; and H. F. Spearow, Member of the City Council.

MADISON, N. J.

New Methods and Forms Increase Efficiency

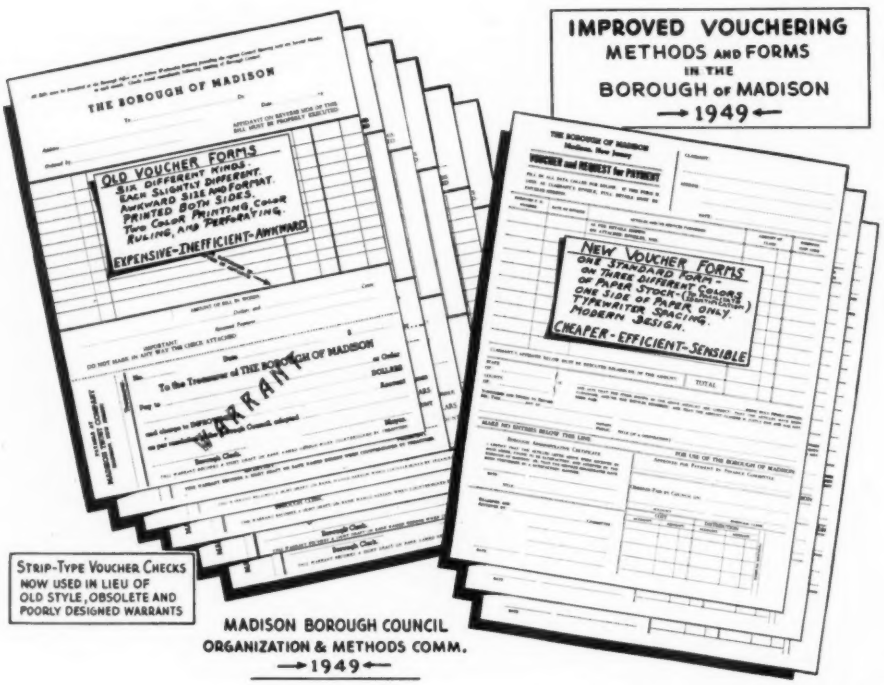
"With steadily increasing costs, accompanied by a rising tax rate, we must make every effort possible to do a better job, in a shorter time, with less effort, and at a lower cost. We must closely scrutinize every municipal activity and operation to eliminate waste, and to increase efficiency so as to ease the burden on our hard-pressed taxpayers."— ***Mayor Norman J. Griffiths of the Borough of Madison, in Morris County, N. J.***

By THOMAS T. TABER
Chairman
Organization & Methods Committee
Madison (N. J.) Borough Council

MADISON is a high-grade residential suburban community with a population of 9,000, located in the northern New Jersey hills, 26 miles west of New York City. Its mayor and six-member council serve without compensation, and devote as much of their time as is necessary in the service of their fellow-townsmen.

To date the Mayor's Organization and Methods Committee has designed and installed new procedures, forms and controls, for the following activities: Purchasing (including a record of outstanding commitments); Receiving; Vouchering; Check Payments; Time Keeping. Other studies currently in process include: Cost System; Personnel Administration; Job Classification and Evaluation; Inventories and Storekeeping; Motor Vehicle Use and Maintenance, and Organization Manual.

As a guide and "thought-starter" for communities which are interested in serving their taxpayers by "doing a better job in a shorter time, with less effort, and at a lower cost," the accompanying questions may prove helpful in determining areas where improvements obviously are needed; as well as indicating the efficiency of the other



activities and operations which appear to be satisfactory.

If "NO" is the honest answer to a check-list question, it is obvious that the matter warrants prompt investigation and consideration. However, in most instances, a "YES" answer calls for the very pertinent question: "How well is this matter handled; how effective is it; and how can it be further improved?"

Questions for Your Own City Commissioner or Councilman

1. *ORGANIZATION:*
   - A. Is there an official, accurate, complete and published organization chart?
   - B. When was it last reviewed, corrected and brought up to date?
   - C. Are copies of the organization chart posted, and available to employees and the public?
   - D. Are all functions shown on the functional organization chart?
   - E. Are overlapping or incomplete assignment or responsibilities avoided?
   - F. Does each employee clearly understand to whom he reports, and who reports to him?
   - G. Does each employee have a postive, complete and clear understanding of his authority, duties and responsibilities?

2. *PERSONNEL:*

   Are there published standards for:

   1. Maintenance of personnel files
   2. Employee grievances
   3. Salary adjustments
   4. Promotions and/or transfers
   5. Better utilization of employee skills
   6. On-the-job training
   7. Supervisory training
   8. Periodic employee evaluation
   9. Periodic job evaluation
   10. Employee suggestions
   11. Lateness, absence and vacations
   12. Overtime
   13. Separation
   14. Exit interviews?

3. *PROCEDURES:*
   - A. Are standard, written procedures provided for each principal activity or operation?
   - B. Are all employees provided with all necessary instructions?
   - C. Have all procedures been reviewed recently?
   - D. Is there an adequate control over forms and reports?
   - E. Is sufficient, proper, efficiently laid out and equipped space provided for each activity or organizational unit?
   - F. Are modern mechanized equipment and office machines used where applicable, and are maximum usage and benefits derived from them?
   - G. Are up-to-date budget and cost records maintained?
   - H. Does the governing body make effective use of cost data and comparative figures?
   - I. Are suitable and adequate procedures provided for, and controls maintained over the following:

     1. Time, overtime, and payrolls
     2. Cash and bank accounts
     3. Receipts and disbursements
     4. Requisitioning, purchasing and receiving
     5. Outstanding commitments and obligations
     6. Storekeeping and inventories
     7. Motorized equipment and vehicle maintenance
     8. Maintenance of buildings and structures?

4. *PUBLIC AND TAXPAYER RELATIONS:*
   - A. Are business offices always staffed, and open on time during business hours?
   - B. Do all officials and employees treat the public courteously and promptly?
   - C. Are all complaints handled promptly and courteously and does the governing body know of them?
   - D. Are the public and taxpayer fully and promptly informed of: Public meetings of the governing body, and the proposed agenda; detailed costs of operating municipal services?
   - E. Are specially qualified citizens invited to meet with and advise the governing body on specific matters, and insofar as possible is such advice used?
   - F. Is every possible effort made to improve the quality of public meetings of the governing body, in order to increase public interest, attendance and support?
   - G. Are appointments to committees and boards based solely on the ability and qualifications of the appointee?

Wauconda, Ill., Tower Develops "Smooth Look"

FOR leadership in water-tower styles, the village of Wauconda, Ill., has stepped out in front with the completely redesigned Horton Watersphere. This new tower has a conical base that tapers smoothly into the supporting column. At the top, it blends equally easily into the spherical portion of the tank holding the water. The supporting column does not store water but is used as a structural member and for access to the tower itself. A door at the base of the column near the ground provides this access. A vertical ladder inside the column extends through the spherical tank by means of an access tube. A manhole near the top of the supporting column provides access to the outside of the column just below the sphere.

Wauconda is a resort community with a winter population of 1,160 and a summer population of 2,500. It takes water from wells through two electrically driven deep-well turbine pumps.

The pumping equipment on Well No. 1 was installed in 1939 and still is in excellent condition. The installation consists of 100 feet of 4½-inch column pipe and a 7-inch, nine-stage American Well Works turbine pump rated at 100 gallons per minute against 215 feet of head; it has 10 feet of 5-inch suction pipe and strainer. This pump is driven by a 10-hp U. S. motor.

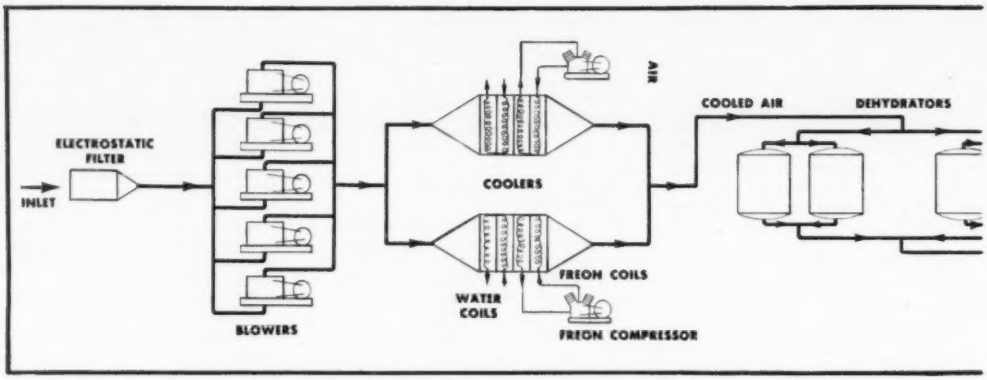
Well No. 2 is equipped with 100 feet of 5-inch column pipe and an 8-inch eight-stage American Well Works turbine pump rated at 300 gallons per minute against a head of 200 feet. It has 10 feet of 5-inch suction pipe and strainer, and is driven by a 25-hp U. S. motor; it was installed in 1940.

Both of these wells are discharging directly to the distribution system; however, the Village Board has recently awarded a contract for the construction of an iron-removal plant. When that plant is in operation, the well pumps will discharge to it, and a high-service pump will deliver water to the distribution system from the holding reservoir at the new treatment plant.

The village has 3.1 miles of distribution system consisting of 4-, 6-, and 8-inch pipe that supplies water to 350 domestic users and four industries. Water use averages 55,000 gallons per day in winter, and 110,000 in summer.

The Watersphere has a capacity of 100,000 gallons at an elevation of 75 feet. The spherical portion of the tank is 30 feet in diameter. The range in head is approximately 25 feet between the upper and the lower water levels.

The Watersphere was erected by the Chicago Bridge and Iron Co., in accordance with plans drawn by Baxter, Nelson and Woodman, civil and sanitry engineers, Crystal Lake, Ill.

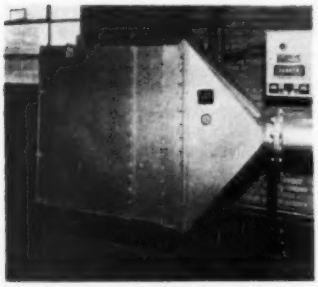


This line diagram, continued on the next page, shows how the ozone is generated and applied.

Why Philadelphia Picked Ozone

By ELBERT J. TAYLOR
Chief, Bureau of Water
Philadelphia, Pa.

THE question of why Philadelphia selected ozone to treat its water supply is certainly fair. Many people have asked it of us. In fact we asked it of ourselves before we proceeded to put in service the present plant at the Belmont filter works. One should be sure of his ground when he puts into operation the largest ozone plant in the world, and one that is 16 times larger than any in use in America.



This first step here is to remove the dust from the air in this American Air Filter electrostatic paper filter.

The fact is that Philadelphia has had a long career studying the use of ozone. Philadelphia also has had a long career wrestling with as tough a water-supply problem as faces any city in the country. In 1905 Dr. D. Rivas, then assistant bacteriologist of the water department, experimented with a plant erected at a point bordering the Schuylkill River that was particularly polluted. His tests indicated excellent results. Since then we have seen experimental plants erected in at least five different municipalities, although they did not adopt the treatment. Working plants were built by seven municipalities, but all but two were abandoned. Of these seven, the two remaining in operation are at Hobart and Long Beach, Ind. During 1940 Denver, Pennsylvania, and Whiting, Ind., put plants in service.

Ozone's Past Use

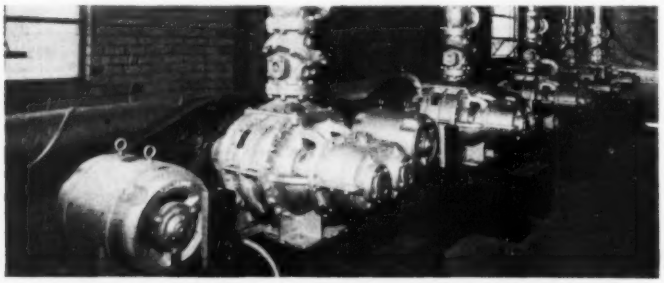
While this is not a particularly impressive record for the United States, it does show that the process has done a job where other types of treatment have run into trouble. Throughout the rest of the world we find about 120 such plants in operation, with about 100 of these in France. We also find a reference in a book by A. Vosamaer, Ph.D., entitled *Ozone, Its Manufacture, Properties and Uses,* stating that the faults of ozone are not that of efficacy, but rather that of poor engineering.

That is the actual reason we picked ozone. We had a tough water-supply problem to beat. We knew that it had done a job elsewhere. We knew that it required good engineering and we felt that we had the engineers to do the job.

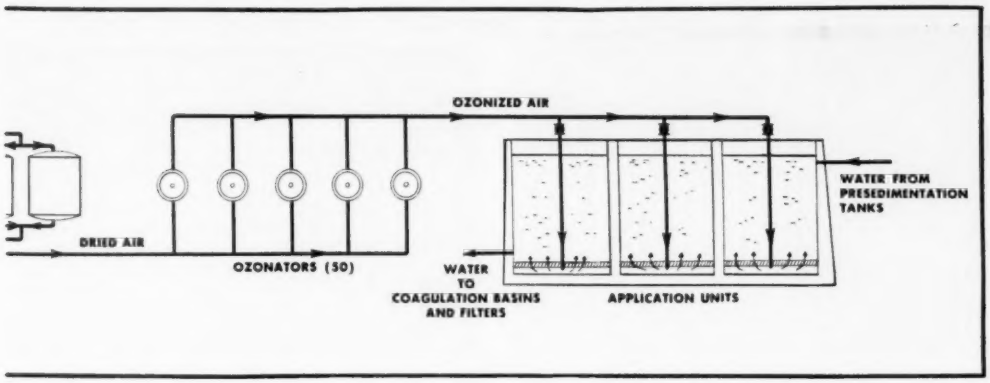
Pilot Plant Results Good

So with that as a starter, the City Council appropriated $10,000 on October 18, 1939, to construct a pilot plant to test the use of ozone in Philadelphia water. This plant was capable of turning out one million gallons of water per day and used the Lower Roxborough slow sand filter plant effluent. These tests were correlated with another smaller pilot plant that turned out two gallons per minute. Briefly these tests gave these results:

1. The treatment effectively reduced



A set of Roots-Connersville blowers force air through conditioning equipment, ozonators, and porous media, and through 18 feet of water in the mixing tanks.



Successful prior plant studies showed the efficiency of this method of water treatment

the tastes and odors in this water. Materials causing musty odors and phenolic tastes were destroyed. Tastes and odors are entirely eliminated or reduced to the point of being scarcely discernible.

2. Ozone treatment does not increase tastes even when the dosage is applied incorrectly.

3. Ozone treatment is a very effective sterilizer.

4. The treatment oxidizes manganese and iron to a form that can be filtered out.

5. The treatment oxidizes organic matter and, if applied previous to the addition of a coagulant, tends to reduce the amount of coagulant required.

6. Ozone eliminates the need for prechlorination. Chlorination after filtration, however, is still highly desirable to maintain sterile conditions in the distribution system.

7. Post-chlorination of water previously ozonated does not appreciably increase the tastes or odors.

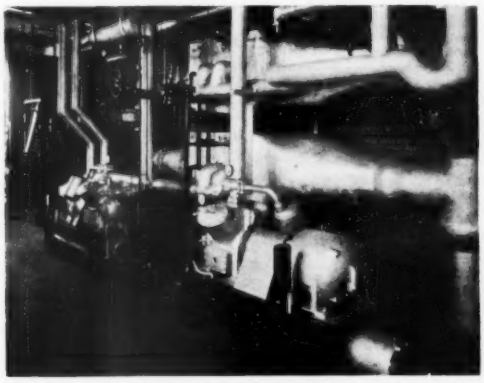
Adopted to Belmont Filters

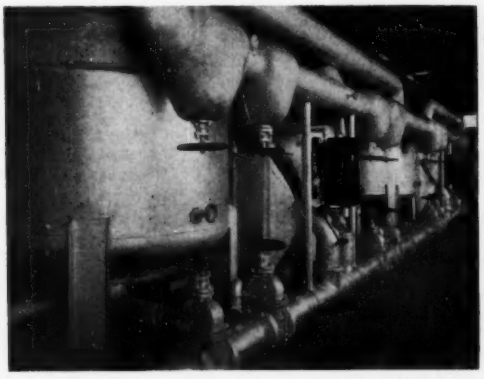
With these conclusions in hand, after suitable public hearings on the subject were held, the City Council and the Mayor decided that the time had arrived to capitalize on these very real benefits. In 1946 steps were completed that led to the construction of the ozone plant at the Belmont Filter Plant. This applies ozone to the pre-settled water ahead of the mixing chambers and coagulation basins for the rapid sand filters. The Pennsylvania State Board of Health gave its approval, understanding that the ozonated water was to be filtered and chlorinated.

Bids were received from two companies, and the contract was awarded to the Welsbach Corporation, Ozone Process Division.

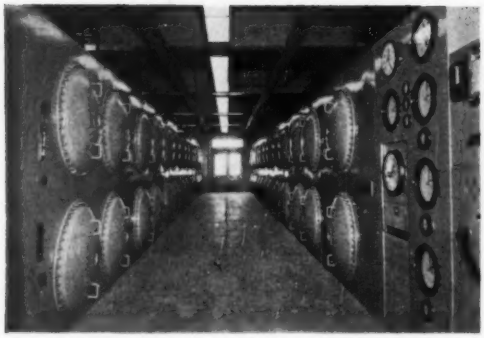
How Ozone Treatment Is Used at Belmont

The Belmont filter plant provides 20 hours of pre-settling with alum if turbidity is high. Half of this water then passes directly to slow sand filters and receives post-chlorination treatment. The other half passes through a pipeline to an open channel where alum, lime, carbon and chlorine are applied successively before entrance to a baffled mixing channel and settling basin, followed by rapid sand filters and post-chlorination. The plant has 12 filters, each rated at 3 mgd. Ultimately we

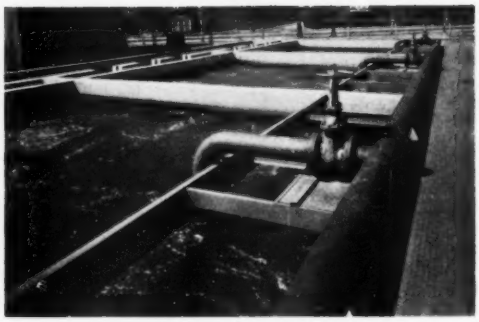




The air is then cooled to 50° or less by Carrier refrigeration compressors, shown at left, to condense the greater part of the moisture in it, and the rest of the moisture is removed in the dehydrators, which are shown at the right.



The oxygen changes to ozone here by an electric discharge.



The ozone then combines with water in these mixing tanks.

expect to build 12 more filters. Our plan is to send the water through the rapid sand filters, ozonate it, and send it through slow sand filters. This treatment should produce a fine, polished water.

As is fairly well known now, ozone is produced by passing air through an electrical corona. In our plant this requires electrical discharge between two electrodes. The voltage on the electrodes is approximately 15,000 volts. For each pound of ozone produced, 8 or 9 kw-hrs. of current are required, plus 2 or 3 kw-hrs. for operating auxiliary equipment.

The Belmont plant has 50 ozone generators capable of producing approximately 9,400 cubic feet of ozone per day at atmospheric pressure.

Clean Dry Air Needed

To operate efficiently, these generators must receive moisture-free and dirt-free air. Air is passed through an electro-static air filter and also passed through refrigerative dryers that drop the temperature to 50°F, removing all moisture in excess of 50 grains per pound of dry air. The air then passes to adsorptive dryers which remove the remaining moisture. When the adsorptive material is saturated, it is redried by circulating heated air through it.

After drying, the air passes through a steel line to the generator units. Not all the air is changed to ozone. We find it economical to convert only 0.5 to 1.0% of the total weight. Thus to obtain the amount of ozone we want, we must circulate 1½ to 3 million cubic feet of air through the generators per 24 hours.

Like Boiler Firetube

In general, the generators look like boiler firetubes. Each has a shell with two headers and tubes between, with cooling water circulated around the tubes. Within each is placed a glass tube, closed at one end, with a graphite compound coating on the inside to form one electrode, the other being the stainless steel tube. Air enters at one head of the unit, passes through the corona between the glass tube and the stainless steel tube to the opposite head and then proceeds to the point of dosing. The body of the generator is composed of stainless steel, as is the piping that carries the ozone to the diffusion tanks.

The diffusion tanks are constructed to allow 1½ to 3 million cubic feet per day of ozonated air to enter through porous plates while 36 mgd of water enter over adjustable weirs at the top of the tank. The tank will allow 10 minutes' contact. The treatment will be adjusted to allow a "residual ozone" to remain in the water after leaving the tank.

While the new plant is of serviceable construction and size, actually it probably will be considered a large-scale pilot model. Operation certainly will produce a great deal of information heretofore unavailable in this country.

We expect to vary the number of generators in service, with the changes in rate of flow through the contact tanks and the changes in ozone demand of the water. We will always maintain a slight residual in the effluent of the contact tanks. Ozone demand will ordinarily not change rapidly; the changes, therefore, will be largely those of filtration rates as reflected in the rate indicator reading at the meter panel.

From these data we expect to uncover the most efficient generation and the most practical and economical operating procedures. And we also expect to uncover such data that will lead other cities with difficult water-treatment problems to turn to ozone as we did. Such a change, however, is definitely not advised until pilot tests on the water in question shall have demonstrated the effectiveness of the process for the problems involved.

Capital Plaza Progress in Salem, Ore.

To the Editor of THE AMERICAN CITY:

As a follow-up of the article which you published in April 1947 (page 116), your readers may be interested to learn that through the efforts of the Salem Long Range Planning Commission the realization of the proposed enlarged Capitol Plaza is considerably closer.

During the 1949 legislative assembly, an act was passed that established a State Capitol Planning Commission.

Although the funds allowed the commission are very small, that is a secondary consideration. All members of the Commission are much interested in the proper design for the future state-capital group. Much of the technical work will be done in the office of the Long Range Planning Commission at their expense.

Members of the Commission are:

Robert W. Sawyer, Bend; newspaper publisher, Chairman

Paul B. Wallace, Salem; member, Long Range Planning Commission

Elizabeth Lord, Salem; landscape architect

Milton L. Meyers, Salem; member, Salem Park Committee

Herman Brockman, Portland; member, American Institute of Architects

George W. Gleason, Corvallis; Dean, School of Engineering, Oregon State College

Sidney W. Little, Eugene; Dean, School of Architecture, University of Oregon.

Of the buildings shown in the picture in the above-mentioned issue of THE AMERICAN CITY, the one in the lower left is just about completed and the one to the right of it will be started shortly.

C. A. MCCLURE
Secretary, Capitol Planning Commission
Engineer, Long Range Planning Commission
Salem, Ore.

Des Moines Steps Forward Again

After 41 years, voters discard commission government for council-manager plan

By
RICHARD C. BAKER and JAMES B. HOLTZCLAW
Drake University
Des Moines, Iowa

FORTY-ONE years ago Des Moines, Iowa, caused considerable stir in the political-science world by adopting the so-called "Des Moines Plan" of city government. What actually happened then was that the Iowa capital took the Galveston commission form and grafted on it such democratic features as the initiative, the referendum, and the recall. Last April 30th, however, the electors of the Hawkeye city took the first step toward putting an end to this innovation in the field of municipal administration; on that day by the narrow majority of 800 ballots out of 40,000 cast they voted to substitute for it the city-manager system.

Des Moines, like a number of cities functioning under the commission form, had been becoming dissatisfied with it in late years, and had at times contemplated its abandonment. Eleven years ago a strong effort was made to supplant it with the managerial method, but this attempt was defeated by the rather substantial margin of 7,500 out of 39,000 votes counted. While this setback was disappointing for the manager forces, they did not despair and were determined to return to the charge at the first feasible opportunity. By 1949 certain factors seemed to have conspired to give them their big chance.

Objections to Des Moines Commission Government

The accusations recently leveled against the commission government in Des Moines consisted of both general and specific charges. Many people were of the opinion that there was often a definite lack of coordination among the various departments to the detriment of good administration. Then too, they thought that at times there was a great deal of buck-passing of responsibility on the commission, a practice to which the system readily lent itself. Furthermore, some citizens rebelled at the idea of having both the taxing and the spending functions entrusted to one and the same group of persons, especially where there was no outside check on expenditures.

The bill of particulars against the commission included the following items. First, the tax rate for Des Moines was generally higher than that of cities of comparable size. Second, the municipal streets were in a poor state of repair and had been that way for a considerable period. Third, garbage collection, particularly in the western section of the city, had become a byword for inefficiency. Fourth, law enforcement, principally in regard to liquor-selling and gambling, had been lax for one reason or another.

The last allegation was perhaps the one which sparked the commission's adversaries to action in late 1948. In the fall of that year charges were lodged against the city's Safety Commissioner, accusing him of taking bribes from certain tavern operators in returning for winking at liquor violations. The Commissioner was ousted from office by the District Court and was also indicted. Later he was restored to his post but the criminal matter remained alive. Whether or not justly so, many Des Moinesians blamed this situation on the entire commission and soon reached the point where they were ready to cashier that body.

Drive Sparked by League of Women Voters

The spark plug of the successful movement to give Des Moines a city manager was the League of Women Voters. This organization was strongly supported by the Des Moines *Register and Tribune*, the Meredith Publishing Company (*Better Homes and Gardens*), Drake University (acting unofficially through its President, Henry G. Harmon, and its political science department, and numerous other civic groups. The League was instrumental in organizing a Citizens' Committee for the City Manager Plan which formally carried on the campaign for the manager cause. Walter J. Millard, of Cincinnati, who had a great deal of experience with the workings of the manager plan in the Ohio city, spent several days in Des Moines explaining the merits of the scheme to well-attended meetings.

Among those favoring the retention of the commission government were the commissioners themselves, members of the city civil service, the tavern operators, leaders of both major parties, and organized labor. The attitude of the commissioners stemmed from two considerations. In the first place, they wanted to keep their present jobs. In the second place, they felt that changing to the manager plan would constitute a reflection on their own administration; it would be, in other words, a vote of no confidence. The latter factor of course involved the matter of personal pride.

The Opposition—And Its Maneuvers

Large numbers of those employed by the city, including many coming under the civil-service rules, did yeoman work in trying to defeat the city-manager plan. Some of the police and firemen spent time both on and off duty placarding the city with signs urging the rejection of the proposal before the people. Those working in other departments performed similar acts of electioneering. The main reason for the intense activity of the city employees in the election was that they were afraid of losing their jobs if a change was made. In fairness to those people, it should be said that the law was somewhat ambiguous as to whether a city manager might not have the power to remove at will any and all city servants. Though the better legal minds believed that the fears of the workers were unfounded, the latter were taking no chances with a new regime.

The tavern proprietors put up an unusually strong fight to keep the old order. In the windows of nearly every "pub" in town were posters calling for a "No" vote. The owners of the liquor establishments knew from experience that they could count on some degree of laxity from the commissioners but were extremely suspicious of the efficiency which was reputed to be one of the distinguishing attributes of a city manager.

The local political bosses in Des Moines, as is the case in nearly all cities, frowned on the city-manager idea. Knowing that one of the primary

aims of the manager plan is to take politics out of municipal management as much as possible, they were unable to see where their profession could gain any advantage by adopting it. To be sure, they had not been too happy under the non-partisan commission government, but they preferred it to an arrangement which was avowedly hostile to political interference with city administration.

Labor supplied the shock troops for the assault on the manager plan and for the retention of the commission. Its position was determined by several factors. For one thing, the workers felt that they had at least one and possibly two friends at court on the commission, and were apprehensive that they might lose those supporters under a different type of government. For another, the city-manager law allowed a salary of only $300 for a councilman, a figure at which few laborers could afford to become members of the city legislature, if elected.

A third objection to the city-manager law was based on a section which would give the mayor the power to take command of the police and govern the city by proclamation in time of danger or emergency. Some of the proletariat saw in this authorization great potentialities for breaking strikes. Another provision of the statute would bestow upon the manager extensive subpoena powers with authority to punish summarily any person who refused to obey such process. Here, too, appeared to be a possible strikebreaking weapon.

"Manager" and "Business-like" Terms Arouse Labor's Fears

The very term "manager" and the expression "business-like" so often employed in the campaign by the city-manager advocates provided a fifth ground for labor opposition to a change. In the minds of many workers a manager is always intimately associated in one way or other with employers, and anyone close to employers must be per se inimical to the toilers. Then, too, any system which is business-like might easily mean stricter control over the work of the employees.

One interesting aspect of the campaign was the decision of the city council to set Saturday, April 30, for the balloting. Seldom in the history of Des Moines had an election been held on a Saturday. But the commissioners apparently felt that this day would give their partisans two distinct advantages, which they could ill afford to pass up. Labor, they reasoned, would not be working, and could turn out to the polls in large numbers. Moreover, the famous Drake Relays would be in progress, which would distract a great many city-manager friends from the west side and the Drake University community from performing their civic duty. But this device of the Commission proved to be valueless, for the manager adherents refused to be diverted from their purpose, and trooped to the ballot box in droves.

Plan Has a Six-Year Grace Period

Come March 1950 the people of Des Moines will choose their first council under the city-manager scheme. The immediate task of its advocates is of a two-fold nature. First, they must assuage the fears of labor, who constitute a large segment of the voting population, by helping it gain representation in the new council. Second, it must select councilmen who wholeheartedly favor the new form, and will hire an efficient manager capable of giving it an auspicious beginning. Fortunately, for the manager zealots the law affords them a grace period of six years in which to establish the plan on a firm foundation.

The "Des Moines Plan" and its deficiencies were discussed in an article appearing in the September 1913 issue of THE AMERICAN CITY—"Some Serious Weaknesses of the Commission Plan," by H. S. Gilbertson.

Richmond, Calif., Becomes Seventh City with FEPC

RICHMOND, Calif., is the seventh city to adopt a fair-employment-practice code prohibiting discrimination because of race, creed or color in hiring by the city or its contract and franchise holders.

According to the Civil Service Assembly, the recent Richmond action provides a penalty of $500 or six months in jail for violation of the ordinance.

In 1945, Chicago became the first city in the nation to adopt a fair-employment-practice law. The Chicago ordinance applies to both public and private employers, as do those of Philadelphia and Minneapolis.

Philadelphia's FEP ordinance includes an express recital that it is an "exercise of the police power of the City of Philadelphia in order to promote the general welfare, safety, peace, health and prosperity," and includes labor unions and employment agencies in its coverage. The ordinance is administered by a special commission.

The Minneapolis ordinance prohibits discriminatory practices in employment and forbids a labor union to limit membership on the basis of race, color, creed, or national origin. The ordinance established a commission on job discrimination, and provides for a $100 fine or 90 days imprisonment for violation of the measure.

The Milwaukee and Phoenix fair-employment acts apply to the city as well as to contracting agencies of the city. Cincinnati's law applies only to city employees.

Ten states have FEPC laws. The laws are of considerable force in New York, New Jersey, Connecticut, Massachusetts, New Mexico, Washington, Oregon, and Rhode Island in that they have commissions to administer them, and legal sanctions are provided in case of violation. The FEPC laws of Wisconsin and Indiana are largely educational and provide no penalties for violations.

New School Announces Housing, Planning Courses

TWO courses in housing and planning at the New School for Social Research, 66 West Twelfth Street, New York, have been announced for the fall term beginning September 26 by Dr. Bryn J. Hovde, president of the New School.

The aim of the courses, Dr. Hovde said, is to present the problems, the methods that are currently being applied to solve them, and the techniques of housing and planning administration. Charles Abrams, housing authority and visiting professor of the Graduate Faculty of the New School, formerly a member of the board of directors of the National Public Housing Conference and the Citizens' Housing and Planning Council, is head of the new school's housing and planning division.

Robert C. Weinberg, architect and city planner, will open a series, "City Planning in and Around New York City," with four lectures entitled "Public Housing Design" to be given by Samuel Ratensky, Chief of Planning of the New York City Housing Authority. The series will discuss the problems involved in guiding the more orderly development of the New York metropolitan region.

Mr. Abrams will conduct a seminar, "Housing and Planning," beginning Tuesday, September 27. The seminar is designed for advanced students who have completed previous housing studies or have made constructive contributions in the field.

In the spring term Lewis Mumford, author and former professor of humanities at Stamford University, will deliver six lectures entitled "Goals for Urban Development."

Big Refuse Containers Improve Baltimore Market Collections

Market-place sanitation takes big step forward as Dumpster units make food-waste disposal easy

By WILLIAM P. FANNON
Bureau of Sanitation
Department of Public Works
Baltimore, Md.

SANITATION in the Baltimore market areas has been a difficult problem for many years, and in the past it has been one that apparently defied solution. However, in the last year, we have been able to meet it and solve it by the use of 10-yard Dempster Dumpster units.

Immediately after Mayor Thomas D'Alesandro, Jr., was inaugurated as Mayor of Baltimore City, and Comptroller J. Neil McCardell came into office, one of the first steps these gentlemen took was to confer with the Bureau of Sanitation about the condition of the Baltimore markets. The responsibility for the market area is vested with the City Comptroller; consequently his interest was very great.

Following this conference, a meeting was held with all the agencies interested in the market cleaning set-up, such as the City Comptroller, the Department of Health, the Police Department, and the Sanitary Engineer, and representatives of civic groups in the city. From this meeting there was evolved a definite plan of action. A policy was established and the Dempster Dumpsters were recommended.

The first steps taken to expedite the actual operation were:

1. To have a complete survey made of market areas that would disclose the physical aspects and sanitary conditions.

2. To compute tonnages from each individual public market to determine the number of the big closed containers, as well as hoisting units, that would be needed to put the operation on an economical basis.

The survey and tonnages developed told us that it would be necessary to use three hoisting units, three truck chassis, and twenty-eight 10-cubic-yard Dumpster containers of the apartment-house type. This equipment was purchased and delivered immediately. Two weeks before the plan was put into actual operation, a meeting was again held with the same parties, and definite instructions were given to each of the agencies as to the part they were to take in the plan.

Through the office of the City Comptroller, the Market Department told each stall occupant of the plan. The Health Department delivered to each of the stall operators definite written instructions as to his responsibility regarding the cleanliness of his stalls and the areas immediately adjacent thereto; the Police Department was untiring in its effort at enforcement while instructions were given and the plan was being put into operation. The Bureau of Sanitation supplied the equipment and labor and arranged all schedules.

This is how the market area looked before the installation of the new system.

This is the way it looks today.

When a container of refuse is loaded, an empty one is brought in before the full container is hauled away.

At the first meeting held on this matter, it was brought out that since the markets are cleaned at night, when the market is closed for the day, the merchants complained that the loss of stall containers was terrific. Since the containers are exposed to the general public, scavengers promptly helped themselves. It was for that reason that a considerable quantity of market refuse was dumped both in the market proper and on the adjacent streets, and remained there until the forces of the Bureau of Sanitation cleaned these areas.

Giving this situation full consideration, we decided that the 10-cubic-yard Dumpster containers placed at strategic points would give the merchant in the market a definite disposal location whereby the refuse accumulated from each stall could be disposed of immediately.

The procedure is that an empty container is placed alongside of the full unit. The truck then proceeds to pick up the loaded container and moves on to the disposal point. By this procedure there is no lost motion and full use is obtained from the equipment.

One important point in the plan is that responsibility is placed directly on the merchant to remove all trash accumulations from his immediate area, to place it in the containers provided for his use, and to see to it that his establishment is kept clean and sanitary at all times. The results have been outstanding. The means for disposal have been provided by the city; the efficient use of the equipment rests with the merchant and he seems very ready and willing to use it.

The versatility of the equipment also has been helpful. When markets are cleaned by the regular Bureau of Sanitation forces, these containers are used in place of a pick-up truck. They can be moved very easily from place to place, loaded and sent to the disposal point. This usage has permitted the elimination of several trucks from the regular market-cleaning program.

This is the picture of the set-up as it is today. Our records indicate that there will be a definite economy from this operation over the old method. We plan to evaluate this at a later date and will make the figures available then.

SYRACUSE, N. Y.,

Motorizes Its Services

Public Works Commissioner Dodge (left) and his assistant examine one of the city's new Gar Wood Load-Packer trucks used for rubbish and ash collection.

Commissioner Ray Dodge assembles modern motorized equipment which enables the Department of Public Works to perform economically its important services for the city

Street repair is an important item in every city. Last year this little Galion roller and the truck-mounted crane helped to repave 8.5 miles of streets quickly and easily.

Much of the street repairing needed new material where frost boils occur. This hydraulically controlled Hoagh Payloader aided in this and other loading operations.

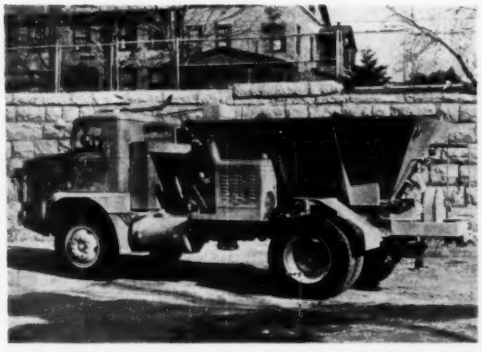
Last year four Elgin Eductors cleaned 7,442 catch basins in Syracuse. Many of these basins are at bottom grades in streets and require attention after almost every rain.

Syracuse public-works crews find that this Studebaker pickup truck with its canopy top has proved mighty handy for quick jobs of maintaining sewers, fences and bridges.

For general use, dump trucks like this Brockway are vitally necessary. They are used for street cleaning, repairs, and many other chores essential to city maintenance work.

For garbage collection, the city uses a fleet of these Heil compactor-type enclosed truck bodies mounted on Reo chassis. White-painted body emphasizes good sanitation.

The city's new streamlined 2,100-gallon street flusher comes into the garage for its regular preventive maintainance checkup. The flusher is one of the modern South Bend units on a Walter four-wheel positive-drive truck.



To further help ice-control work in the winter, the city uses this heavy-duty sand-spreader mounted on another Walter Snow Fighter. This big truck also carries a front-end plow and an underbody scraper for all-purpose service.

Dr. H. A. Crandell, left, Superintendent of Toledo Area Sanitary District, and Edward A. Rohloff, a field inspector, discuss mosquito-control work.

How Toledo Gets Rid Of Mosquitoes

Fogging, spraying and other methods used to give maximum insecticidal benefits to fit specific areas

By P. BRUCE BROCKWAY, M.D.
Director
Toledo Area Sanitary District
Toledo, Ohio

ONE census trend in the Toledo area is definitely on the decline—that of the adult mosquito population. For the fourth consecutive year the Toledo Area Sanitary District workers are fighting these pests that health authorities name as possible spreaders of malaria and encephalitis.

The Toledo Area Sanitary District officers and employees, using the most modern larvicide sprays and equipment, have made great inroads into the mosquito stronghold. Work of the District is carried on the year round. DDT dust is used in the wooded areas throughout the winter months and early in spring this program is enlarged to prevent the breeding of mosquito larvae.

Civic-minded Toledoans, led by John D. Biggers, president of the Libbey-Owens-Ford Glass Company; Howard Mikesell, a business man, and the author of this article, campaigned vigorously to establish the Toledo Area Sanitary District with its mosquito-control program.

In 1945 the group went before Common Pleas Judge Thomas J. O'Connor with petitions signed by a number of citizens, and under the authority voted by the Ohio State Legislature, the Toledo Area Sanitary District was established. This area includes six townships within Lucas County and all of the City of Toledo.

A special tax-assessment program, which provided the funds to finance the operation of the Sanitary District, was set up and the cost is approximately $1.50 per year to the average taxpayer.

The writer was named Director of the District. The organization and program established were similar to the one developed in 1938 for Ottawa Hills, a Toledo suburb.

Dr. Herbert A. Crandell, a medical entomologist who had served as commanding officer of a malaria survey unit in the Pacific War Theater, was appointed superintendent of the District in 1946. Dr. Crandell was familiar with mosquito-control work, and after launching his preliminary survey of the Toledo area, set up the plan for control work here.

The work of the District had to be carried on in wooded and swampy areas that had either no roadways at all or the most unimproved type. Vehicles that could negotiate this type of terrain had to be obtained to carry the larvicide sprays and other materials to the points where mosquito breeding could be controlled.

Willys-Overland Motors, Inc., with its Jeep and four-wheel-drive trucks, became interested and offered its vehicles to the Mosquito Control officers. Today, the control unit utilizes both Jeeps and Willys-Overland four-wheel-drive trucks for all larviciding work.

Program Schedules

Time schedules have been set up for the breeding seasons of the different varieties of mosquitoes. Increased vigilance is taken during breeding times to assure the quick annihilation of the larvae.

Mosquito population is measured by three methods: larval stations, biting stations, and light traps. The crewmen

Where lighter applications will do, this Buffalo Turbine Duster is used. It is driven off the Jeep power take-off.

The more powerful Root Duster is also used, in those areas where heavier applications of DDT are required.

check the larval stations weekly. A prescribed number of dippers full of water are taken from a pool and the type and total number of mosquito larvae is recorded.

Biting stations are selected at random in woodland areas. Observers count the number of mosquitoes alighting on their bare forearms. The pests are collected in "killing tubes" and are taken to the laboratory for identification.

Light traps are operated during the night in representative breeding areas both in and outside the District. An ordinary electric light is used to attract the mosquitoes. The insects attracted to the light are sucked down into a cyanide killing jar. The light trap is used for measuring the relative densities of adult-mosquito populations.

Catch-basin and manhole spraying is a very important part of control work. The District has Jeeps equipped with tanks for carrying insecticide. The Jeep driver stops his vehicle over the catch-basin and pushes the nozzle of the sprayer into it. A fine mist of larvicide is pumped into the basin. There are 26,551 catch basins in the area. Empolyees using Jeeps can spray 375 to 400 basins per day.

Covered Twice

In 1948 the Toledo District, which includes about 150 square miles, was covered twice during adult-mosquito fogging operations by crewmen, and some parts were fogged as often as five times. Larviciding crews cover the district each week checking for mosquito breeding and taking necessary control measures.

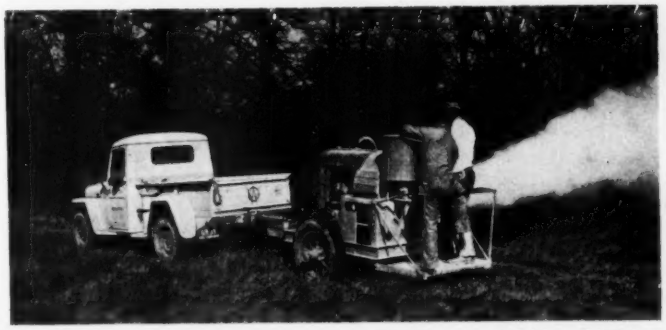
Much of the larviciding spray is mixed at the new headquarters. In mixing the sprays, the laboratory technicians have taken into consideration safety factors for plant life and wild life. By using a dry fog for adult-mosquito control, there can be no damage to automobiles and foliage.

The District is also conducting an educational program to inform Toledoans about its work. Mosquitoes will breed in containers as common as a tin can containing water. Consequently, the District is using every possible means to tell Mrs. Toledo Housewife about mosquito-control measures that she can take around her house and yard.

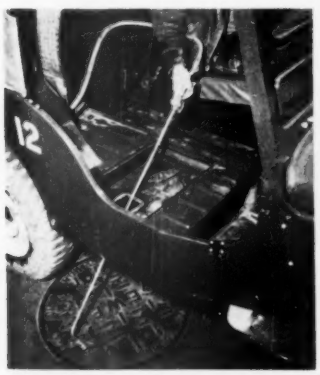
There are thousands of returned servicemen throughout the United States who contracted malaria while in the armed service. These men are reservoirs for the malaria parasite. A mosquito, biting a malarious victim, can readily spread the disease to others.

In 1945, the Toledo Health Department reported three malaria cases. A year later, the Health Department listed 117 cases. The increase probably was due to returned service personnel. In 1947, six cases were reported, and in 1948, there were none.

A TIFA fogger goes to work in a residential area. The fog is dry and carries particles of DDT. It does not harm automobile paint, plant life, or foliage.



The Willys-Overland Jeep truck tows a Bean Mist Duster which blows DDT into the tree-studded area to check the mosquito nuisance before it gets started.

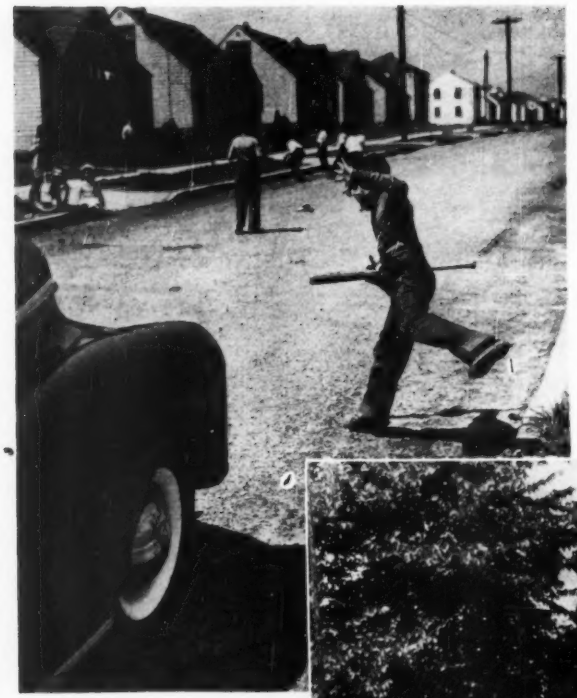


This hole cut in the Jeep's floor plate makes spraying manholes and catch-basins much faster and much more convenient.

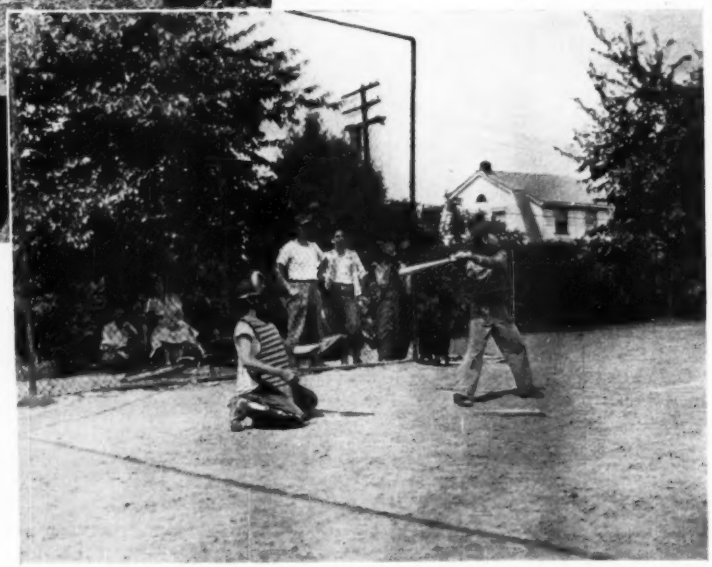
Crewmen do not overlook stagnant streams and ponds. In this case a fine film of larvicide does the work. It is quick-breaking and does not harm wildlife.

No. 7 of a series of "before and after" views of notable civic improvements

As Was – And As Is



Akron, Ohio is discouraging ← *THIS by providing THIS* ↓



A. E. Genter, Superintendent of Recreation at Akron, reports for the 1949 summer:

¶ "There are over 200 playground teams organized on our 47 playgrounds.

¶ "In addition, we have 10 baseball schools that meet once a week in different sections of the city with a qualified coach in charge.

¶ "More than 20,000 boys and girls are registered at our playgrounds this summer."

STREET PHOTO COURTESY OF AKRON "BEACON JOURNAL"

Elkton Digs a Well

Michigan village finds new well field when existing supply becomes dangerously polluted

By CLIFFORD SPICER
Consulting Engineer
Saginaw, Mich.

DURING the summer of 1945 the municipal water supply of Elkton, Mich. (population 600), began to smell and taste bad. Samples analyzed in the State Health Department laboratory showed that the water was unsafe.

This prompted the Village Council to ask the Health Department for assistance. An investigation found that many residents were discharging septic-tank effluent, basement drainage, and laundry and kitchen waste into so-called "leak wells." These leak wells were in most cases private open wells and cisterns used for private water supplies prior to the availability of a village water supply.

The geologic formation at Elkton consists of stiff yellow clay and hardpan to a depth of approximately 25 feet. Below this is shale, limestone, and sandrock. The adverse drainage characteristics probably account in part for the fact that private wells and cisterns were used as leak wells.

The village well from which the water supply was obtained is 287 feet deep, cased to a depth of 30 feet, which is 5 feet into a shale rock formation. As soon as contamination was discovered, emergency chlorination was started and continued until a safe supply was obtained.

Solutions Looked Into

Plugging of all leak wells was considered as a solution of the problem, but there were from 50 to 75 leak wells in the village, many of which could not be located. This left only one other solution: to find a source of supply outside of the built-up section of the village and upstream in relation to the flow of the groundwater.

The Health Department, in cooperation with the State Department of Geology, collected data on many of the wells in the village and vicinity. Samples of water from each well were analyzed for total hardness, sulphates, chlorides, iron, and unsafe bacteria. From this information it became apparent that the underground flow of groundwater was in a northwesterly direction; that in certain areas the sulphates and chlorides were very high; that water from the Michigan limestone at depths ranging from 55 to 70 feet has a hardness much higher than that from the Marshall sandstone at a depth of 150 to 170 feet.

At about this stage of the problem The Spicer Engineering Company was employed by the village to take charge of the planning in the development of a new source of water supply.

After a careful study of data which had been previously collected by the Health Department and Department of Geology, it was decided that the best location for a new well was at the southern limits of the village approximately one-quarter mile from the last residence. This location required 2,600 feet of 6-inch supply main to make a proper connection with the distribution system.

General Obligation Bond Issue

In order to finance the work it was decided that a general-obligation bond issue was the best choice because of a lower interest rate than revenue bonds.

The bond issue was approved with an overwhelming majority and a contract was awarded as soon as possible for the construction of a test well and a final well.

Fifteen feet of limestone between the depths of 55 feet and 70 feet was water-bearing, but the water was very hard. Below the limestone we found 19 feet of dark gray shale without water. From a depth of 89 feet to 173 feet we encountered a water-bearing white sandrock, below which was white shale. Drilling was stopped at a depth of 175 feet, or 2 feet into the white shale.

The mixed water from the test well showed it to be very hard but bacterially safe. A pumping test showed a capacity of approximately one gallon per minute per foot of drawdown.

The test well was sealed off at 70 feet and the hole filled above this point with 4 feet of concrete. The remainder of the hole was filled with the cuttings from the drilling operation.

The final 8-inch well was cased off through the drift, upper shale, and limestone formation to a depth of 71.5 feet. The drilling was continued in the rock to a total depth of 175 feet. The final well was then test-pumped for 8 hours at the rate of 105 gpm, during which time the drawdown remained constant at 85 feet, indicating a capacity of 1.23 gallons per minute per foot of drawdown.

We wanted 150 gpm from the well. It was decided, therefore, to shoot the well in an effort to increase its capacity. The casing was pulled back and 100 pounds of 60% dynamite was discarged in the hard sandrock between the depths of 150 and 170 feet. The casing was replaced in the well with an 8-inch nipple and coupling for a seal at the bottom. After cleaning the well it was again test-pumped for 8 hours at 105 gpm, resulting in a constant drawdown of 75 feet. This indicates a capacity of 1.4 gallons per minute per foot of drawdown and represents an increase of about 13% due to shooting the well.

The well was equipped with a Cook turbine pump having a capacity of 140 gpm against a total head of 233 feet. This results in a drawdown of 100 feet below the static water surface or 110 feet below the pump discharge. The tops of pump bowls were set a depth of 150 feet to allow for ample submergence of the bowls and a possible lowering of the groundwater level.

The water from the final well showed the following characteristics:

Soap hardness	300	ppm
Iron	0.2	ppm
Chlorides	10	ppm
Bacteria	Safe	

The reduction of the hardness from 500 in the test well to 300 ppm was due to casing off the water from the limestone. The people of Elkton noticed the difference in the hardness as soon as the new well was cut into the system.

A gasoline-engine stand-by unit was installed in the new pump house in view of the fact that power failures are common in this locality.

The supply main, from the new well to the distribution system, consisting of 6-inch Transite pipe, was installed as soon as possible after the well was completed.

We began the work in March of 1948. The work on the water supply was all completed, with the exception of the pump installation, by November 1, 1948. The pump was installed in December 1948, and the people began using the new supply in March of 1949 after final adjustments had been made on the pump installation.

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M unicipal
P ublic
R elations

The City Tells Its Story

By HENRY DAVIS NADIG, *Director of Public Relations, New York Regional Plan Association*
Executive Director, Association of Municipal Public Relations Officers

MPR past, present, and future: the pioneering continues

"THE cause of Democracy will be subserved by simplicity and clearness; confusion and general muddiness are the favorite instruments of corruption."

"The next step in this evolution will be a campaign of education amongst our citizenship, in order to form public opinion in favor of the Plan of Chicago by able and earnest argument, illustrated by telling pictures, because it is realized that to accomplish something you must take the people into your confidence."

These quotations are from the first and second issues respectively of THE AMERICAN CITY, for September and October 1909. It was Benjamin Ide Wheeler, then President of the University of California, who said that the "cause of Democracy will be subserved by simplicity and clearness." It was Charles H. Wacker, author of the famed Wacker Manual, who cited the importance of taking people into your confidence.

Those are words of early pioneers in MPR—penned before the phrase *municipal public relations* began to be used and long before we began to conceive of the term as standing for a practical means of enhancing the efficacy of local democratic government. They point up the fact, on the occasion of this 40th anniversary issue of THE AMERICAN CITY, that the intrinsic nature of municipal public relations is deep-rooted and valid.

Succeeding issues of the magazine tell the story of how pioneering in this developing field has progressed—whether consciously or unconsciously, officially or unofficially practiced and under whatever aegis and name—until we have seen it achieve the stage of organized effort as exemplified in the newly formed Association of Municipal Public Relations Officers. Indeed, AMPRO, endeavoring to consolidate the frontiers of MPR, might well adopt the first part of the first quotation as a motto.

"Boston has evolved a new type of public exposition. Inhabitants of New England and all persons concerned with making cities more interesting places to live and work in are invited to observe it—now."

That was the lead of an 11-page illustrated article in Volume 1, Number 3, of this magazine, by Everett B. Mero. Titled, "An Exposition That Mirrors a City," it was the first and undoubtedly one of the best, in a long line of reports on municipal exhibits to be presented by the magazine.

Pointers on Exhibits

This brings us down to modern times and to some good advice on exhibits from Harry R. Langdon of New York City. Mr. Langdon, who speaks from experience as Director of New York's Golden Anniversary Educational Exposition, last year, says that it has been proved there's no better way to visualize fully the activities of all departments and agencies of a community than through an educational exposition.

Collaborating with representatives and officials of all of the 102 city departments and agencies, Mr. Langdon faced a major task in bringing the multifarious work of the world's greatest city to its people. It was a notable accomplishment.

Centralize your exhibit in one main auditorium or arena, include all activities of city government and trace the city from pioneer existence to modern setup, with a view to creating a desire to know your city, advises Mr. Langdon.

He advises a duration of at least two weeks and financing by businessmen, industrialists, and civic organizations (to promote civic pride) and with budgetary control. Widespread organizational representation on a promotional committee is recommended, as well as timing of the show with a date of some local significance and tying it in as an American Heritage Program.

Library Initiative

In exhibits, too, we are also opening new vistas. We are learning the value of simplicity and clarity, of not overdoing. And is it not true that in departmental exhibits we have barely begun to take advantage of possibilities?

Last year's Chicago Housing Exhibition at the Public Library provided a good example of how a library can serve in MPR. Incidentally, Miss Mildred Bruder, Director of Public Relations at the Chicago Public Library, adds another good tip in connection with exhibits: having a well-informed

One of the panels displayed at the "Housing in Chicago" exhibition last year.

attendant at the desk is invaluable. "It ties the whole thing together and makes for good public relations."

Miss Bruder's comment on the housing exhibit will be of special interest to those concerned with public libraries.

"I have always felt," she writes, "that libraries ought to face current problems of all kinds, honestly, and interpret them to the best of their ability, to the public. Most libraries are either too lazy to do so, are afraid to do anything, or prefer to be ostriches.

"I feel quite sure that we are the first public library to carry a graphic story of the housing problem to our reading public. Maybe it will encourage a few more libraries to follow suit. Maybe it will also encourage housing agencies in other cities to work on their local librarians."

Pioneering in Minnesota

Yes, in MPR we are still pioneering; and we shall be doing so for some years to come. For, as previously pointed out in this column, MPR is now entering the early testing stage on a broadening front and must prove itself by its works.

One of the most critical and most important phases of the ordeal through which MPR must pass is that of gaining the confidence, understanding and respect of the press. And MPR's toughest proving ground will not be with the large dailies or the medium-sized dailies; it will be with the weeklies and the small dailies.

Reason: The smaller the paper and the municipality, the greater the feeling on the part of both editor and official that each can handle his side of press-relations without benefit of MPR.

Yet there are countless examples in the relationships and attitudes between small papers and their respective municipal officials that verily cry out for applied MPR.

Miss Joan Joiner, Editorial Assistant in the League of Minnesota Municipalities, has done yeoman work on the press-relations phase of MPR in her state. Miss Joiner prepared a graduate report on "Municipal Public Relations in Minnesota" for a class taught by C. C. Ludwig, Professor of Political Science at the University of Minnesota and executive secretary of the League.

Her chapter on "Relations of Local Governments with State Press in Minnesota" appeared in the July issue of *Minnesota Municipalities*, the League's publication. It is a pioneering job, well handled. She sent a questionnaire to various non-metropolitan newspapers in her state, received responses from 15 dailies in municipalities with a population of more than 10,000, four dailies and four weeklies in the 5,000 to 10,000 group, and 11 weeklies in places with less than 5,000 people.

Editors responded on: their usual source for city news, how council news was obtained, what sort of prepared stories they might be receptive to, how they stood on "off-the-record" matters, and on the publication of proceedings as well as their views on MPR.

If my count is correct, Miss Joiner quoted 16 editors or reporters, directly or indirectly (not including grouped responses). Now—if you have been a "constant reader" of this column, and will read Miss Joiner's article in *Minnesota Municipalities*, I think you will agree that MPR has a workable, effective and valuable aid for the condition or fact behind each of the 16 comments (which cannot be included here for space reasons).

Miss Joiner's conclusions, briefly, are that:

(1) Attempts at education for press relations should be directed at clerks and mayors (indicated in the survey as the two chief sources of press information).

(2) Municipal spokesmen can initiate a great deal of help to both press and government, are generally deficient in news consciousness, should take initiative in suggesting stories of the research type although press desires to do its own writing.

(3) Suppression of news, while not uniform, seems to be more frequent in small municipalities.

(4) Editors see need for legislation regarding publication of council proceedings.

(5) Editors are generally sympathetic to MPR although the term arouses some unfavorable reaction due to misconception of the ideals of the MPR policy.

Here, again, in her conclusions, Miss Joiner has brought forth clearly some basic points definitely showing that there is a real place for MPR in many Minnesota municipalities. Her conclusions likewise are in the nature of a three-cornered challenge: to officials to look into the practicalities of MPR; to editors to understand the real nature of MPR; to present and potential MPR practitioners in Minnesota to demonstrate the value of their profession to the advancement of local democratic government.

Both Professor Ludwig, for his encouragement of his student's research and reporting work, and Miss Joiner for her carrying out the study and her able piece of writing are to be complimented on their MPR pioneering in Minnesota.

When you consider that of our 2,000 cities with a population of more than 5,000, only roughly 100 publish annual municipal reports in printed form, you can appreciate how really small is this particular MPR frontier. The group of *graphic* pioneers within this advance company is likewise small, but the gap is steadily being closed between the number of reports published and the number of published reports that are easily digested by John Q. Citizen.

Mayor John F. Parker of Taunton, Mass. (population 38,000), a former newspaperman, has sent a copy of his second annual report—a very readable 36-page publication pleasantly scattered with illustrations. Taunton citizens had received no printed report for 18 years until Mayor Parker's first report last year. Now the city is well covered with this information piece.

The Mayor compiled and edited the report himself and the city published it on a bid of $569 for 2,500 copies. It was distributed by the water department and also mailed out to barber shops, beauty parlor, dentists, physicians, business firms, libraries, and the clergy.

You can figure that it cost Taunton about 23 cents to put a copy into a barber shop. But you can't measure in dollars and cents the effect of a phrase or a page or a picture in raising the civic consciousness and understanding of those who glace at the report while waiting for a haircut.

Mayor Parker does not go in for complex charts and graphs. In a letter telling about his report, he writes:

"I think perhaps our approach to the tax problem on pages 18 and 19 is unique. In reading over many reports from other cities I did not see any similar approach to this subject. I have found from observation that most people do not understand complicated charts and graphs explaining municipal receipts and expenditures. Plain language and simple facts, such as we have outlined on page 18, strike a more responsive chord with the average taxpayer."

Mayor Parker's newspaper background is an important factor in shaping his concept of office and his MPR consciousness. Taunton citizens will be among the best informed and the most alert to civic advancement as a result of his leadership.

What and How Of Housing Act of 1949

THE Housing Act of 1949—what it is and how it works—is explained for the layman in a 30-page booklet, "A Handbook of Information," published by the Housing and Home Finance Agency and now available for distribution to the general public.

Copies can be secured from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 15 cents a copy.

Six Years With Sunnydale

A MODEL MINING TOWN

By W. C. WALKER
Housing Manager
Utah Fuel Company
Salt Lake City, Utah

SUNNYDALE, a "war baby" housing development built by the Utah Fuel Company, has passed through its growing-pains period and proved its worth both to the company and the miners and their families who inhabit the comfortable and modern Sunnydale dwellings.

The idea of building Sunnydale arose many months before the entry of the United States into World War II, when it became apparent that a greatly expanded steel industry would, in turn, require an immense additional tonnage of coking coal. To help meet this demand the Utah Fuel Company began the rehabilitation of its Sunnyside No. 1 mine, and early in 1942 leased its No. 2 mine to the Kaiser Company, Inc. Sunnyside had become a ghost town during the years of lean production of coking coal, and it was realized that immediate housing accommodations must be provided for the hundreds of men required to rehabilitate and operate the two mines.

Moroni Heiner, then president, and Claude P. Heiner, then vice-president and general manager of the Utah Fuel Company, were convinced that good modern housing would prove beneficial both to the miner and to the company, and that it would eliminate most of the objections many families had to coal-mining towns, and be the means of attracting the highest type of miner.

They also realized that this much improved housing could not be provided for the $8 and $10 monthly rental which was common in the coal-mining towns. The question, then, was "would the miners be appreciative enough of the modern housing to be willing to pay the increased rentals necessary to make it possible?" The Utah Fuel executives decided that the miners wanted and needed it and were as desirous of keeping up the American living standards as any other class of employee.

With this in mind, a site about a mile from the older houses in Sunnyside was selected, and a brand new subdivision was planned and called Sunnydale. The streets were laid out to take advantage of the gently rolling terrain, and the new utilities for water, power, and sewage disposal were installed. A total of 240 houses was constructed, using variations of seven basic designs of four to six rooms. All were modern, with well-equipped bathrooms, best-grade oak floors, lath and plaster walls, and a goodly supply of convenience outlets. Two hundred and five of them had garages.

Completed in Six Months

The F. H. A. Title VI plan of financing and inspection was used. The first dirt was turned in October 1942, and by February 10, 1943, many of the houses were occupied. Within six months from the beginning of construction all of the houses were completed and occupied.

To relieve the mine management of the many details connected with such a construction project, a subsidiary known as the Sunnyside Improvement Company was organized. Experience proved this division of management to be advantageous in many ways, and it has been continued since the completion of the construction.

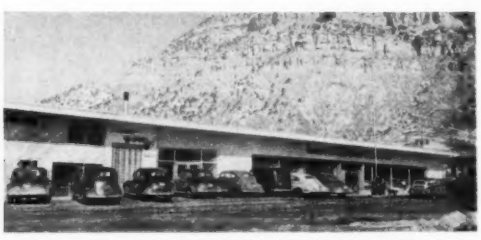
The streets were paved with asphalt; concrete walks, curbs and gutters constructed; and, as a finishing touch, all front yards were planted with lawns and trees. The company lent its moral and financial support to the organization of various recreational and educational projects, and to the establishment of a sizable public library.

Rents were established on a basis of $40 per month for the larger houses and $35 and $38 per month for the four-room houses, which amounts were deemed necessary to pay the operating expenses of the project, leaving nothing for a return on the company's investment. At the insistence of the War Manpower Commission, and partly to relieve the competition of a government-built and operated and heavily subsidized town closely adjoining Sunnydale, rents were subsequently reduced to $30 and $33 per month on the smaller houses. The district was then declared a Rent Control Area, and rents were frozen at that reduced figure.

Although Sunnyside is an incorporated town, and has the same income rights from taxes as other incorporated towns, the tax rate is low. As most of the taxable property in the town belongs to the Utah Fuel Company, it has been expedient in the past for the company to assume the burden of providing such facilities as garbage collection, police protection, and other services. It has also provided excellent water from a mountain stream seven miles away at about 1/3 of its cost to the company. Naturally, these things resulted in Sunnydale's being quite heavily subsidized by the company. However, the building and operation of Sunnydale is justified by the fact that it has attracted a stable and high-class labor supply.

In 1948 the Kaiser-Frazer Parts Cor-

Park Street, which is a typical residential street in the Sunnydale mining town, in the spring of 1949.



Here is a view of Sunnydale's new shopping and recreational center nearing completion in June 1949.

poration built an additional 60 houses in the subdivision, and within the past few months the Utah Fuel Company has completed a $200,000 industrial and recreational center. It houses a large general department store, and in it such businesses as a drug store, barber shop, theater, and bowling and game room are being operated under lease by private interests. Other buildings have been sold by the company to individuals for remodeling into a bakery and apartments. Encouragement is given businesses not operated by the company to become interested in the community. The incorporated town is also more and more assuming the responsibility of the utilities and upkeep problems, and it may eventually be self-operating.

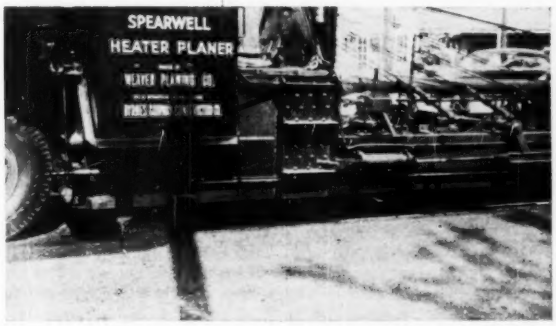
An enlightened company management policy has succeeded in making Sunnydale a model mining town that people are proud to call home.

Cincinnati Smooths Bumps With Asphalt Street Planer

Takes corrugations out of pavement and returns it to smooth riding condition

IF YOUR city has plenty of asphalt-pavement yardage but finds it is subject to displacement, although in otherwise sound condition, you can remove corrugations and level it economically by using a heater-planer. At least that is the experience in Cincinnati, Ohio. Charles E. Brokaw, Superintendent, Division of Highway Maintenance, explained this in a paper delivered before the American Road Builders Association recently in Washington, D. C. He stated that with a contract of 40,000 square yards, the planer removed deteriorated asphalt at a cost of 27 cents per square yard. By using a conventional heater, the removal and replacement of 1-inch-depth material would have cost the city approximately $1 per square yard.

The planer is a product of the Spears-Wells Machinery Co., Oakland, Calif. It is equipped with a series of fuel-oil burners that can be adjusted to various temperatures. The burners heat the pavement surface in advance of the planing edge. The machine operates at approximately 30 to 60 feet per minute and planes a width of 50 inches at one pass. It has windrowing blades which pile the cut material alongside for removal. Cincinnati removed the windrowed material with a front-end loader. The entire heater-planer operation progressed without any unusual hindrance to traffic.



The uneven corrugations are bladed into a windrow by the planer.

The maximum cut by the planer is approximately one-quarter to one-half of an inch. It can be used on both sheet-asphalt and stone-mix pavements. The planer in most cases shears the aggregate rather than tearing it out of the pavement. Where conditions are serious, it is necessary to plane two times to secure an even contour. Where excessive depressions exist, the material removed from high spots is used to bring low spots to grade.

The planer is particularly useful in removing "washboarding" in sheet-asphalt pavement that does not have sufficient stability. The work generally requires a seal coating of some type, although certain areas were left unsealed and continued summer weather permitted satisfactory sealing through action of traffic.

The work is conducted under the direction of Charles E. Brokaw, Superintendent of the Highway Maintenance Division of the Department of Public Works. Robert G. Sarvis is Director of Public Works. Wilbur R. Kellogg is City Manager.

The length of the planer.

Household Garbage Grinders—

How They Affect Sewers

Grinders of seven different makes were used in the tests.

By KENNETH W. COSENS
Associate Professor
of Civil Engineering
Ohio State University
Columbus, Ohio

WITH the development and acceptance of the domestic-waste-food disposer, or garbage grinder, as a household appliance has come the problem of knowing whether or not our sanitary sewers are capable of handling the wastes produced by this appliance.

It has been quite well established that the grinders will increase the quantity of flow by only 2 or 3% in sewers handling only domestic sewage. This increase should in no way be of concern to designing engineers or municipal officials, since it is not significant.

The grinders do, however, macerate or grind types of garbage solids which will settle in improperly designed or maintained sewers or household plumbing. Eggshell and ground bone are the two materials which appear to be most troublesome, from the standpoint of quantities found in garbage and from the specific-gravity standpoint.

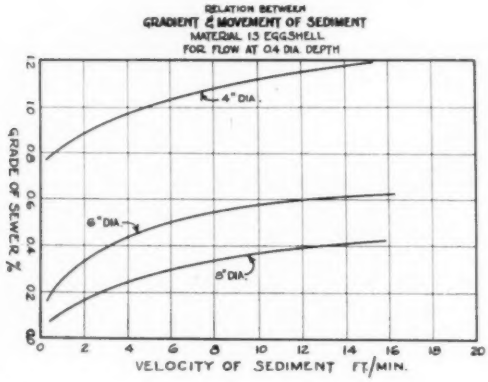
Eggshell, with a specific gravity of 2.30; bone, with a specific gravity of 2.08, and several other types of heavy materials such as fruit pits were used in studies conducted in the sanitary-engineering laboratory at the University of Texas to determine at just what velocity of flow in the sewer we would develop sedimentation. It might be well to advise here that metal objects, glass, china, or seafood shells should never be placed in the grinders as transporting velocities are not generally available.

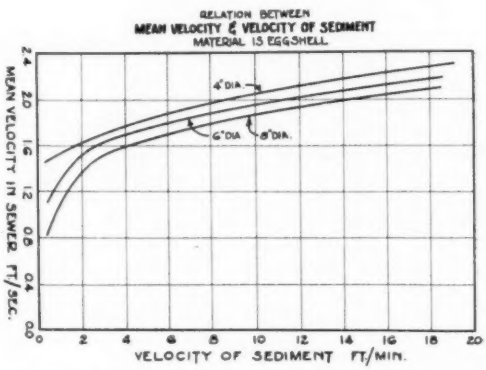
The study was carried out using 4-, 6-, and 8-inch vitrified clay sewer pipe with bell and spigot joints. The pipe was half-round, with the top 180 degrees of the pipe open for observations and laid in an adjustable cradle so grade could easily be fixed to produce any reasonable required velocity. Seven different makes of domestic grinders[1] were donated by manufacturers and used to produce the ground materials placed in the drain for purposes of study.

The major portion of the study involved the use of eggshell because it was the heaviest and because experience at sewage plants and other places indicated this one material to be very troublesome. Preliminary studies using several other common garbage constituents bore out the fact that eggshell was the most difficult of the materials tested. There is substantially little difference in the size of particles produced by various grinders used. Each grinder was slightly different in some way but they all produced a fairly uniform type of ground solids which would be transported at velocities shown on the accompanying curves.

In design practice, minimum recommended grade for 4-inch pipe is 1.2%; for 6-inch pipe, 0.6%, and for 8-inch, 0.4%. These grades will produce flowing-full or half-full velocities of 2 feet per second. At depths of flow below half full, the velocity of flow is less than 2 feet per second. By carefully observing the accompanying curves it may be noted that, at these minimum recommended grades and 0.4-diameter depth of flow, the sediment (eggshell) is transported at a rate of 13 to 15 feet per minute. Minimum slopes that

* The research was performed by Professor Cosens while he was on the staff of the University of Texas.





Tests show they introduce no difficulty in properly designed sewers—little difficulty arises even in poor sewers—grease presents a problem only when hot

would not produce transporting velocities are indicated. Note that curves are given relating the velocity of sediment with both the grade of the sewer and with the mean velocity of water in the sewer. These two sets of curves can be used by the designing engineer to predict at what depth of flow or velocity sedimentation will take place.

It appears that a minimum desirable mean velocity of 0.7 feet per second is required in an 8-inch vitrified clay sewer pipe, 1.0 feet per second for a 6-inch pipe, and 1.4 feet per second in a 4-inch pipe to prevent the deposition of ground eggshell. It is indicated that no trouble should be encountered in properly designed and maintained sewers from the standpoint of disposal of grindings from the kitchen sink. If eggshell is mixed with leafy vegetables it will be more easily transported than if ground alone.

Some trouble has been experienced with clogged plumbing and sewers at an egg-cracking plant in Houston, Texas, where an attempt was made to dispose of the eggshells by grinding and emptying into the sewers. In our laboratory studies we were able to build up deposits in the drain and sewer pipes which would clog them if a minimum amount of water were used and insufficient flushing action were allowed between charges of egg shells. There appears to be no such problem in connection with domestic use of the grinder, but its industrial or commercial usage must be studied and recommendations made later.

To reproduce poor sewer-laying practice a 6-inch sewer pipeline was laid so that occasional individual pipe sections would have reverse or uphill grades to the extent of 0.6%. Ground eggshell did deposit in the low places thus formed, but if given sufficient time would drift out if a 2-feet-per-second velocity was maintained in the pipeline. There seems to be a tendency for a deposit to form which restricts the pipe cross-section. This in turn increases the velocity of flow to the point where it is transporting, similar to the natural sedimentation in stream beds.

The Problem of Grease

Tests confirm that large quantities of hot grease which will congeal at the lower temperature of sewage or the household plumbing pipelines should not be poured directly into the grinder or sink drain. For observation purposes a 1½-inch-diameter lucite pipe was attached to the grinder outlet and when hot melted grease or cooking fats were poured into the grinder, using cold water for flushing purposes, a deposit was formed in the drainpipe that clogged it. This condition occurred only when hot grease and cold tap water were mixed at the grinder. Other combinations of hot and cold water and hot and cold grease were used. As a result of these studies it can be recommended that grease, if congealed first in cold water, then flushed with cold water through the operating grinder, will give a minimum amount of trouble in the house plumbing. Congealed grease is broken up in the grinder and is transported in cold water through the house plumbing and sewers.

Use of Plug Valves

It would be desirable in household plumbing waste lines and sewage-sludge-handling lines to consider seriously the installation of plug valves in place of ordinary gate valves, which have a tendency to encourage sedimentation in the valve seat with heavy garbage solids such as eggshell and bone, causing considerable maintenance expenses. Plug valves with full round or full area rectangular openings were tested when handling ground eggshell and no indication was found of settling action or plugging.

Conclusions

1. It appears that present design standards for slopes of sanitary sewers will satisfactorily transport the solids produced by waste-food disposers handling domestic garbage.

2. If the flow of water through the grinder is 2 gallons per minute or greater,[2] no trouble should be experienced with plugged household plumbing.

3. Automatic flow-regulating devices on the grinders are desirable but not absolutely necessary.

4. Grease should be congealed in cold water before placing it in the grinder and should be flushed down the drain with cold water.

5. Design curves for special problems involving transporting and sedimentation of heavy garbage solids are given.

6. Garbage solids and ordinary domestic-sewage solids are so much alike that we can expect no unusual operational problems in connection with the transportation of kitchen-ground wastes in sewer lines unless their slope is considerably less than recommended standard practice.

References

[1] Grinders were furnished by the following manufacturers or firms: General Electric Co.; Thomas W. Berger, Inc.; Given Manufacturing Co.; National Rubber Machinery Co.; Mullins Manufacturing Co.; In-Sink-Erator Manufacturing Co.; and Westinghouse Electric Corp.

[2] "Sewer Velocities Required for Kitchen-Ground Wastes," K. W. Cosens and E. J. Hanemann, THE AMERICAN CITY, January 1949, pp. 102-103.

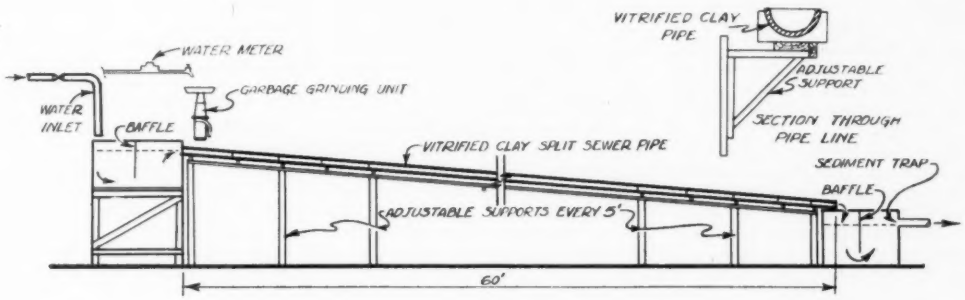


DIAGRAM OF TEST APPARATUS

Snow Removal by Salt with Less Corrosion

Laboratory and field studies indicate need for 1% phosphate in salt used for snow and ice control to check possible car damage by salt brine

THE use of de-icing salts in snow-removal work has become standard practice in many northern American cities, states, and counties. However, with the increasing use of de-icing salts has grown the motorists' fear that corrosion induced by the salt was taking a heavy toll in rusted car fenders, doors, and other parts. Paralleling this has been the public-works engineer's concern with possible corrosion of steel components of ramps, bridges, and other structures.

Citizen groups have protested, often vociferously, the use of de-icing salts. In some cases they have succeeded in preventing their use against the better judgment of civic officials who rightfully place the safety interests of the citizens in first position. Fortunately, as in many other situations, when a controversy is brought out into the open, a few farsighted individuals look for a constructive solution rather than take part in damaging verbal abuse.

One such individual was Mr. M. L. Davis, Service Director for the City of Akron, Ohio. He solicited the aid of civic-minded chemists of Goodyear Tire and Rubber Company's Research Laboratory in the search for a corrosion inhibitor for de-icing salts. Another was John A. Temmerman, the City Chemist of Rochester, N. Y., who independently sought a solution to the problem when the residents of that city threatened to seek an injunction that would have prohibited the use of salt.

After preliminary laboratory studies, Goodyear chemists recommended to Mr. Davis that the City of Akron use salt inhibited with 1% by weight of sodium dichromate. Akron initiated and continued this practice during the winter of 1947-48. In the summer of 1948, Goodyear chemists reported their visual observations on Akron automobiles, which indicated that the use of sodium dichromate had materially lessened the corrosion rate.

Akron's tests led chemists at Calgon, Inc., Pittsburgh, Pa., to suggest the use of Banox as a substitute for the dichromate, which was then in short supply, and which was subject to criticism because of its alleged toxicity. Goodyear Research Laboratory made a series of laboratory tests on Banox in the fall of 1948 and concluded that Banox is a suitable corrosion inhibitor for de-icing salt. Accordingly, the City of Akron began the use of Banox last winter when its supply of dichromate became depleted. Since the citizens of Akron were familiar with the color imparted to the snow by dichromate, Mr. Davis' suggestion that the Banox be artificially colored was followed. This proved to be entirely satisfactory and it was adopted as a standard practice.

All test panels for the field examinations were carried on the front fender brace. Arrow points to the panel.

By C. T. ROLAND and G. B. HATCH
Calgon, Inc.
Pittsburgh, Pa.

Banox

Banox, composition No. 1, which is the dustrially in aqueous solution for producing a protective and corrosion-inhibiting film on steel. It was first developed as a rust-inhibitive for steel shell cases and other war material prior to painting to improve the durability of the finish. Since the war it has been employed in numerous rustproofing projects in industry, particularly in connection with the painting and cold-forming of steel.

Banox, composition No. 1, which is the recommended formula for de-icing-salt use, is a proprietary compound having as its base a water-soluble glassy phosphate. It is non-toxic and harmless to plant and animal life, and has no deleterious effect on paint, concrete, or other material with which it may come in contact in street maintenance use. It is also harmless to fabrics, leather, rubber, and other materials used for wearing apparel.

A test method was devised in our laboratory to simulate the conditions of exposure encountered in driving an automobile through dilute brine twice daily, with parking in the interim.

Clean, rust-free, cold-rolled steel strips, similar in composition to auto body stock, were subjected to periodic immersion in brines and subsequent periods of standing in the atmosphere. The daily cycle consisted of 1 hour of immersion in the brine, 5 hours in air, 1-hour brine immersion, then 17 hours in air; the test period comprising four such cycles. The tests were conducted at 35° C. Corrosion rates were evaluated by weight loss; the steel strips were weighed before exposure, and at the conclusion of the test period they were pickled in inhibited acid in order to remove adherent corrosion products, and reweighed.

The chart on the next page shows the effect of the addition of several concentrations of Banox (composition No. 1) upon the rate of corrosion as a function of the salt concentration. The data indicate that a concentration of at least 1% Banox based upon the weight of the salt is required for marked inhibition at the lower salt concentrations (i.e., 1 to 5%), which typify the solutions frequently existing upon the road during the use of de-icing salt.

These test results were first checked by Goodyear Research Laboratory, which reported general agreement. Since then a number of independent laboratories have checked the rust-inhibiting value of Banox in salt brine in tests such as these and have found Banox to be an effective inhibitor of salt corrosion.

Field Corrosion Tests

Last winter and spring, an effort was made to determine, by means of weight-loss tests on steel panels, the effectiveness of Banox in actual use. Four cities, one pair in Michigan and the other pair in New York, of reasonably comparable sizes and close proximity, were selected as test areas. One city of each pair used untreated rock salt for de-icing purposes, and the other used salt containing Banox. Following

the winter period of salt usage, a second test was made in the Michigan cities to determine the amount of corrosion occurring during early spring driving with only rain water to promote corrosion.

City police patrol cars were selected for the tests; two test panels were mounted on each of five or six cars in each city. Through the cooperation of local and state authorities, records were kept concerning the use of the cars, street conditions, salting operations, etc. Climatological reports were obtained from Weather Bureau stations of the U. S. Department of Commerce.

Field Test Procedure

The test panels consisted of rust-free, 3-by-3-inch, 20-gauge cold-rolled steel, similar in composition and finish to auto-body stock, with a 3/16-inch hole in the center for mounting. The panels were cleaned, dried, and weighed and subsequently attached to the test cars. Whenever possible the panels were mounted on the front fender braces; otherwise, depending on construction of the cars, they were mounted on the splash pan in the front fender cavity. Each panel was held in place by a 3/16-inch bolt. The panels were mounted directly in line with the wheels with the face in a plane parallel to the tire tread.

At the termination of the test period, the panels were carefully removed to avoid mechanical injury and shipped to the laboratory. There, they were cleaned, pickled, and again weighed; the difference in the initial and final weights thus obtained served as a measure of the amount of corrosion which had occurred.

Field tests showed that corrosion was definitely reduced even though the Banox application was less than half the figure recommended. The figures showed a reduction of 21 and 24% respectively in the two winter tests by the use of Banox averaging less than 0.5%. As closely as can be ascertained, the percentage of Banox premixed with the salt was erratic; at times as high as 1% mixture, at others it was 0.5%, and sometimes, unfortunately, none was used.

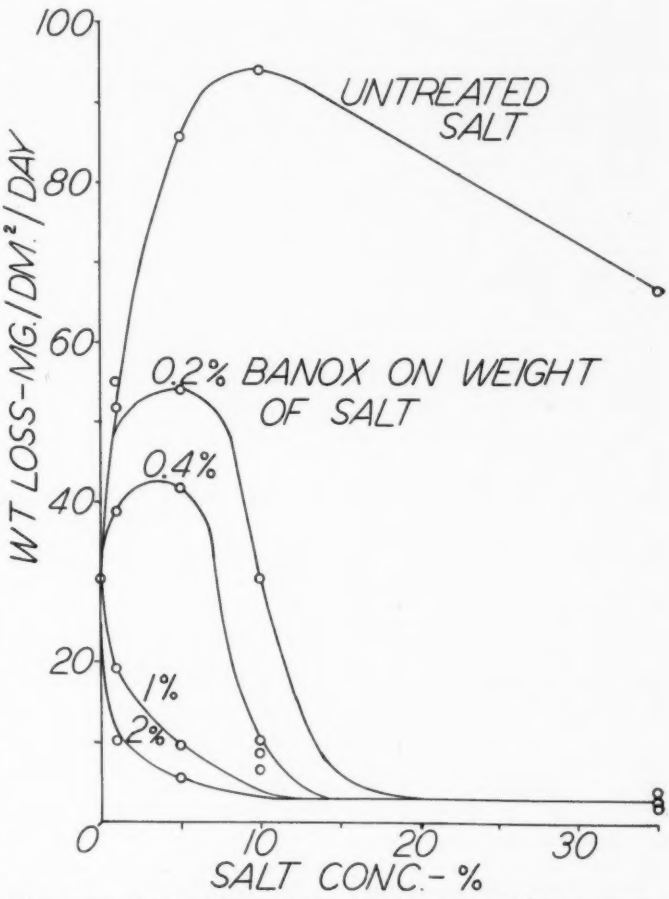
Last winter about 50 different communities used Banox either experimentally or for the treatment of a major portion of their de-icing salts. The reactions of public-works officials were quite generally favorable. The fact is that complaints from motorists on corrosion were at a low level last winter because of the mildness of the weather in the northeast-central area. Aside from the unseasonable weather aspect, however, the cities that used Banox obtained a real measure of relief from the adverse criticism of the motorist. This was also reflected by the fact that several cities that formerly rejected the use of de-icing salt because of pressure by the citizens initiated the use of de-icing salt last winter solely because Banox was available as a corrosion inhibitor.

Mixing the Banox with de-icing salt proved to be a relatively simple procedure. Some of the smaller cities have used cement mixers, but the general practice was to add a proportionate amount of the inhibitor to the de-icing salt either during stock piling or during the loading of the salt-spreader truck by means of scoops, bucket elevators, or bags. All of these methods proved satisfactory from the standpoint of the inhibitor application.

It does not appear to be necessary to accomplish an intimate premixture of inhibitor with the de-icing salt. The action of the salt spreader and the churning of traffic back and forth on the roads results in a rapid equalization of the mixture. In cities where intersections only were salted, it was noted that the colored Banox-treated salt slush made its way up and down the length of the block in less than one hour.

Banox, composition No. 1, contains a small amount of water-soluble coloring material. The purpose of the coloring is twofold: it readily delineates the area or streets salted and, at the same time, indicates the presence of the corrosion inhibitor to the citizens. About 75% of the cities using Banox last winter used the colored form and were generally pleased with the result. The colorless type is designated Banox, composition No. 1-P.

The authors wish to acknowledge the assistance given them by the public officials in the cities in which the tests were made. A special acknowledgment is made of the helpful counsel and physical assistance given us by officials of the Michigan State Highway Department in Lansing.



These curves, based on laboratory tests, show that a 1% or higher concentration of Banox cuts metal corrosion immediately in sodium-chloride brine.

Does Your City Have the Necessary Powers To Participate Fully in Housing Act Benefits?

MATERIAL furnished to THE AMERICAN CITY by the Housing and Home Finance Agency indicates that communities in a number of states will be unable to avail themselves of the loan and grant benefits made available by the Housing Act of 1949 because their state legislatures have not passed the enabling acts necessary for their adequate and full participation in the new housing and redevelopment programs.

For example, cities in Iowa, Kansas, Utah, Wyoming, Oklahoma, and South Dakota still do not have laws authorizing the creation of local housing authorities. The importance of such legislation becomes clear when it is recognized that 810,000 public housing units are now authorized during the next six-year period, compared with the 191,700 dwelling units which were built in 268 localities under the U. S. Housing Act of 1937. Communities in every state should be entitled to their fair share of these units.

Another feature of the new Housing Act —Title I—authorizes a total of $1,000,000,000 in loans and $500,000,000 in capital grants for urban redevelopment during the next five years. Yet, only thirty states have some type of specific slum-clearance and urban-redevelopment enabling legislation. In three of these states—Indiana, Missouri, and New York—the slum-clearance laws themselves do not specifically authorize borrowing of federal funds or acceptance of federal grants; and Kansas and Kentucky slum-clearance laws authorize redevelopment by private corporations only.

Legal authority to comply with the federal requirements in Title I of the Housing Act of 1949 * must exist in some form, whether it be found under some of the state public-housing laws, general or miscellaneous state statutes, or even in some city charters. In general, experience under other federal-aid programs indicates that the enactment of specific state enabling legislation expressly authorizing participation in accordance with the requirements of the federal statute is usually necessary in order to receive full benefits.

The original statutory citations are published here to aid municipal law officers and other interested local officials in determining the powers of their communities to participate in these new and important fields. In states where adequate local authority does not exist, THE AMERICAN CITY suggests that local officials, through their state leagues of municipalities, should urge that legislative action be taken as soon as possible.

* For a description of these requirements, see "What Cities Should Do Now to Qualify for Federal Redevelopment and Housing Aid," THE AMERICAN CITY, August 1949, p. 93.

Statutory Citations for State Slum Clearance and Urban Redevelopment Laws

(Citations to private-redevelopment-company statutes are included only for Kansas and Kentucky, which lack other urban-redevelopment statutes, as such)

ARKANSAS: Redevelopment Act—Acts of 1945, No. 212.

CALIFORNIA: Community Redevelopment Act —Statutes of 1945, Chapter 1326, as amended.

COLORADO: Rehabilitation Act of 1945—Laws of 1945, S. B. 324.

CONNECTICUT: Redevelopment Act — Public Act No. 397, approved July 26, 1945, as amended.

FLORIDA: Redevelopment Law—Statutes, 1945, Chapter 23077.

GEORGIA: Redevelopment Law—Laws of 1945, Governor's Act No. 616.

ILLINOIS: Blighted Areas Redevelopment Act of 1947—Laws of 1947, S. B. 548, as amended; S. B. 204, Laws of 1945, as amended; S. B. 549, Laws of 1947, as amended; S. B. 550, Laws of 1947

Rehabilitation by Municipalities—Laws of 1945, S. B. 39 and S. B. 201.

INDIANA: Redevelopment Act of 1945—Acts of 1945, Chapter 276.

KANSAS: Laws of 1943, Chapter 118.

KENTUCKY: Acts of 1942, Chapter 36, as amended.

LOUISIANA: Acts of 1948, No. 500.

MARYLAND: Chapter 217, Laws of 1949.

MASSACHUSETTS: Chapter 574, by Acts of 1947.

MICHIGAN: Redevelopment Law—Public Acts of 1915, No. 344, as amended. Public Law 208, Acts of 1949.

MINNESOTA: Municipal Housing and Redevelopment Act—Laws of Minnesota for 1947, Chapter 487, as amended.

MISSOURI: Urban Redevelopment Corporations Act—Laws of 1945, S. B. 185, as amended.

NEW HAMPSHIRE: Redevelopment Law—Session Laws of 1947, Chapter 210.

NEW JERSEY: Urban Redevelopment Law — Laws of 1946, Chapter 52, as amended; Chapter 187, Laws of 1949; Chapter 300, Laws of 1949; Chapter 306, Laws of 1949; Chapter 303, Laws of 1949.

NEW YORK: Rehabilitation by Municipalities —Laws of 1945, Chapter 887, as amended.

OHIO: H. B. No. 195, Laws of 1949.

OREGON: H. B. No. 160, Laws of 1949.

PENNSYLVANIA: Urban Redevelopment Law —Laws of 1945, No. 385, as amended. Redevelopment Cooperation Law—Laws of 1945, No. 383, as amended.

RHODE ISLAND: Community Redevelopment Act—Laws of 1946, Chapter 1802, as amended.

SOUTH CAROLINA: Redevelopment Law — Acts of 1946, No. 696.

TENNESSEE: Redevelopment Law — Public Acts of 1945, Chapter 114.

VIRGINIA: Laws of 1946, Chapter 185, as amended.

WISCONSIN: Blighted Area Law — Laws of 1945, Chapter 519. (See also laws of 1947, Chapter 606, under "Veterans' Housing.")

DISTRICT OF COLUMBIA: Redevelopment Act of 1945—60 U. S. Stat. 790 (1946), P. L. 171, 81st Congress, approved July 15, 1949.

PUERTO RICO: Urban Redevelopment—Acts of 1947, No. 97.

TERRITORY OF HAWAII: Act No. 379, Session Laws of 1949.

Statutory Citations for Public Housing Laws of States and Other Jurisdictions

ALABAMA: Housing Authorities Law—Code, Title 25, Sections 5 to 30 and 58 to 75.

ARIZONA: Municipal Housing Law—Laws of 1939, Chapter 82 (Code, Sections 16-1601 to 16-1624).

ARKANSAS: Housing Authorities Law—Acts of 1937, No. 298, as amended.

CALIFORNIA: Housing Authorities Law — Statutes of 1938, Ex. Sess., Chapter 4, as amended.

COLORADO: Housing Authorities Law—Laws of 1935, Chapter 132, as amended.

CONNECTICUT: Local Housing Authorities Act —1939 Supplement to General Statutes, Chapter 33c (General Statutes, Chapter 33c, Sections 178e to 202e), as amended.

DELAWARE: Housing Authority Law—Laws of 1934, Chapter 16 (Revised Code of 1935, Chapter 160, Sections 5453 to 5472), as amended.

FLORIDA: Housing Authorities Law—Statutes, 1941, Chapter 421, as amended.

GEORGIA: Housing Authorities Law—Laws of 1937, page 210, No. 411, as amended.

IDAHO: Housing Authorities Law—Laws of 1939, Chapter 234 (Code Ann., Sections 38-1801 to 38-1825).

ILLINOIS: Housing Authorities Act—Laws of 1934, 3d Sp. Sess., page 159, H. B. 4, as amended.

INDIANA: Housing Authorities Act—Acts of 1937, Chapter 207 (Burns Statutes Ann., Sections 48-8101 to 48-8127), as amended by Acts of 1947, Chapter 374.

KENTUCKY: Municipal Housing Commission Law—Revised Statutes, Chapter 80, as amended.

LOUISIANA: Housing Authorities Law — Acts of 1936, No. 275, as amended.

MAINE: War Housing Authorities Law—Public Laws of 1943, Chapter 260.

MARYLAND: Housing Authorities Law—Laws of 1937, Chapter 517 (Code Ann., Article 44A, Sections 1 to 23), as amended.

MASSACHUSETTS: Housing Authority Law— Acts of 1935, Chapter 449, as amended.

MICHIGAN: Housing Commission Law—Public Acts of 1933, Ex. Sess., No. 18, as amended.

MINNESOTA: Municipal Housing and Rede-

velopment Act—Laws of Minnesota for 1947, Chapter 487.

MISSISSIPPI: Housing Authorities Act—Laws of 1938, Chapter 338 (1938 Supplement to Code of 1930, Chapter 122E, Sections 1574 to 1601), as amended.

MISSOURI: Housing Authorities Law—Laws of 1939, H. B. 6, page 488, as amended.

MONTANA: Housing Authorities Law—Laws of 1935, Chapter 140 (Revised Codes Ann., Sections 5369.1 to 5309.27), as amended.

NEBRASKA: Metropolitan Cities Housing Authorities Law—Laws of 1935, Chapter 29, Laws of 1937, Chapter 94, as amended.

NEVADA: Housing Authorities Law—Statutes of 1943, Chapter 20, as amended.

NEW HAMPSHIRE: Housing Authorities Law—Session Laws of 1941, Chapter 222 (Revised Laws, Chapter 109, Part 1), as amended.

NEW JERSEY: Local Housing Authorities Law—Laws of 1938, Chapter 19, as amended.

NEW MEXICO: Municipal Housing Law—Laws of 1939, Chapter 293, as amended.

NEW YORK: Public Housing Law—Laws of 1939, Chapter 808, as amended.

NORTH CAROLINA: Housing Authorities Law—Public Laws of 1935, Chapter 456, as amended.

NORTH DAKOTA: Housing Authorities Law—Laws of 1937, Chapter 102.

OHIO: Housing Authority Law—Laws of 1933-34, Vol. 115, Part 2, page 56, H. B. 19, as amended.

OREGON: Housing Authorities Law—Laws of 1937, Chapter 442, as amended.

PENNSYLVANIA: Housing Authorities Law—Laws of 1937, P. L. 955, No. 265, as amended.

RHODE ISLAND: Housing Authorities Law—Public Laws of 1935, Chapter 2255 (General Laws of 1938, Chapter 344), as amended.

SOUTH CAROLINA: Housing Authorities Law—Code of Laws of 1942, Civil Code, Sections 5271-31 to 5271-61, as amended.

TENNESSEE: Housing Authorities Law—Public Acts of 1935, Ex. Sess., Chapter 20, as amended.

TEXAS: Housing Authorities Law—Laws of 1937, Chapter 462, as amended.

VERMONT: Housing Authorities Law—Public Acts of 1937, No. 231, as amended.

VIRGINIA: Housing Authorities Law—Laws of 1938, Chapter 340, as amended.

WASHINGTON: Housing Authorities Law—Laws of 1939, Chapter 23, as amended.

WEST VIRGINIA: Housing Authorities Law—Acts of 1933, 2d Ex. Sess., Chapter 93, as amended.

WISCONSIN: Housing Authorities Law—Laws of 1935, Chapter 525, as amended.

DISTRICT OF COLUMBIA: Alley Dwelling Act—48 U. S. Stat. 930 (1934), as amended.

PUERTO RICO: Enabling Act of Congress—52 U. S. Stat. 1203 (1938). Housing Authorities Law—Acts of 1938, No. 126, as amended.

TERRITORY OF ALASKA: Enabling Act of Congress—55 U. S. Stat. 601 (1941). Housing Authority Law—Laws of 1945, Chapter 15.

TERRITORY OF HAWAII: Enabling Act of Congress—50 U. S. Stat. 558 (1937). Housing Authority Law—Session Laws of 1935, Act 190 (Series D-168), as amended.

VIRGIN ISLANDS: Municipal Housing Authority Ordinance—Enacted in 1940 by the Municipal Council of St. Thomas and St. John.

Reading, Pa., Snow-Removal Program

By CHARLES M. STONER
Director
Department of Public Safety
Reading, Pa.

IN SPITE of severe snow and sleet storms in past winters we developed a snow-removal program that keeps Reading's main streets snow and ice free, and holds traffic tie-ups to a minimum—a fact which the local newspapers noted in commenting favorably upon our work. And we did it on a minimum budget.

Our program depends heavily on careful organization of our forces and equipment, so that we can begin work on a storm the minute it strikes. We get Weather Bureau reports and have men on duty around the clock. They begin snow-removal operations as soon as snow begins to fall. Because it acts fast and is economical, we rely on rock salt to do a major portion of the work, spreading it on all main streets in the business district.

An automatic spreader attached to the back of a truck spreads rock salt on main streets as part of Reading's time- and money-saving snow-removal job.

Quick action in spreading rock salt goes a long way toward simplifying our job, and to speed our operations we keep a truck loaded with it at all times throughout the winter, so that we can take care of danger spots immediately. In the years that we have been using rock salt we have found that one application completely removes light snowfalls and ice coatings, giving us bare, safe streets shortly after we put it down, and saves us the expense of plowing. When we have a heavy snowfall, rock salt removes part of it and keeps the remainder from freezing until we can plow it aside and haul it away; the snow doesn't bond to the street surface, and that saves a good deal of time and money when we do have to plow. If the snow has packed or ice has already formed, the rock-salt crystals bore down through them, break them up, and make them easy to remove.

In former years when we used abrasives on the streets we had to apply them several times during a continuing storm, because they blew away or were rapidly covered over by additional snowfall. And when the storm was over, we had to clean them off the streets and take them out of the catch basins in the spring. With rock salt there is no such waste and no extra work, and for these reasons we have found that it is much more economical to use; we have been able to do a more thorough job, and to do it on a more economical budget. At the same time, we've cut our accident rates.

To make sure that we have an adequate supply of rock salt on hand during the winter, we begin building our stock pile in late summer or early fall, storing it in the municipal machine shop, and we keep it built up until the winter is over. Ordinarily we have a lot of storms—not very deep falls, but enough to impede traffic and cause trouble for us unless we take care of them immediately.

Our complete list of equipment includes two Barber-Greene Snow Loaders, one Windsor spinner-type spreader converted for salt, three Windsor spinner-type cinder graders, two Allis-Chalmers angle bull graders, one Trojan grader, one Huber grader, one Good Roads hand-operated grader, and four Good Roads snowplows.

Accidents Are Too Expensive

Safety program among city's public service employees saves Superior, Wis., over $3,000 a year in workmen's compensation costs

By WILLIAM J. DEEGAN, JR.
City Manager
Superior, Wis.

A FEW years ago we learned that the cost of workmen's compensation insurance for our 280 public-service employees was not a fixed charge but would be higher or lower in proportion to our success in reducing the number of accidents among our city employees.

Investigation disclosed that in 1942, for instance, our compensation-insurance rates carried *a charge of* 23.8% *over* the average, or manual, rate because of our bad accident experience of the preceding years. It was pointed out to us by R. O. Helberg, engineer for our insurance carrier, Employers Mutual of Wausau, that here was an expense that we could definitely control by making an intensive, consistent effort to reduce the number of accidents to employees covered by this insurance.

The ensuing program has brought about a steady decrease each year in our cost of compensation insurance, until our 1948 safety record earned us *a credit of* 22.9% *less* than the manual rate—a dollars-and-cents saving of over $3,000. In the last three years the decrease in cost of our city compensation insurance has amounted to very nearly $7,000.

Superior, with a population of 40,000, is the largest city in the upper half of Wisconsin. This is not only true of its population but of its area, 42 square miles, approximately the size of Milwaukee. Our public works and maintenance spread over 110 miles of paved streets and 120 miles of unpaved streets, 186 miles of cement sidewalks and 96 miles of city sewers, a sizeable maintenance undertaking for a city of 40,000 people.

First step in our safety program was to make one individual responsible for it, and Philip A. Moreau, City Purchasing Agent, was named Safety Director. In cooperation with Bob Helberg, of Employers Mutuals, he organized a safety committee of the supervisors and foremen in charge of such departments as garbage collection, streets, parks, sewers, and shop, and including Director of Public Works Herbert Dann.

Once our safety committee was organized, we began to analyze our accident record, find out where the major hazards were and set about to correct them. One starting point was the city garage, maintenance shop and warehouse. We cleaned up these places, and built racks and storage accommodations for such items as tires, tools, and inflammable materials. With the cooperation of the foremen of these departments, all members of the safety committee, we have kept them that way. We have found that when a worker starts off in a clean, orderly, well-kept place in the morning, he is apt to carry this example with him through the day.

Safety Measures Taken on Garages and Trucks

An electrically operated overhead door was put on the city garage when it was discovered that back strains were a frequent occurrence as a result of employees pushing open the old sliding doors. An epidemic of headaches on the part of employees riding in trucks in severe weather was averted by placing gas tanks on all city trucks outside the cab. It was found that cold gas, vaporizing as the cab warmed up, had sent fumes into the cab and caused this health hazard.

We discovered that many of our garbage-collection employees were suffering from strains caused by lifting extra-sized garbage containers. The council passed an ordinance limiting the size of such containers to a standard 30-gallon size. Citizens were supplied with wooden racks which kept the can about a foot off the ground. This removed part of the work of lifting and also prevented the cans from freezing into the ground in winter. Today, with four modern garbage trucks, each operated by two men and a driver, we clean every alley in the city once every five days. This is compared with the former methods where seven trucks, with seven men each, could get around only once every three weeks.

A safety program in a city located as is Superior must take into account the severity of our winters. Equipment that might be entirely safe to use in a more temperate climate could be hazardous with us. Steps on trucks and other vehicles have to be big enough for a man to stand with fur-lined boots, low enough to the ground to step on with heavy winter clothing. Sturdy armholds must be big enough to allow a man with heavy gloves and coat to hang on safely. Cast-iron gears on exposed machinery often will break at 20 degrees below zero. All our equipment with exposed gears calls for part-steel construction.

With our purchasing agent, Mr. Moreau, also the director of safety, we carry a consciousness of the safety factor into all our buying. Safety specifications are written into all orders as the result of our own experience. The safety of the equipment offered is a prime consideration in the selection of bidders.

Regular monthly meetings of the safety committee are conducted by Mr. Moreau and Mr. Helberg. Safety films are shown, reports of accidents are made, and methods of avoiding them in the future are discussed. At least twice a year, at the beginning of the summer and the winter work seasons, a general meeting of all city employees is held in the city hall at which safety films are shown and a brief talk is given, warning workers of the particular hazards of the season.

In summing up, I would say that the success of our safety program has been brought about through the untiring enthusiasm of Director Moreau, the interest and cooperation of our supervisors and foremen, and the active support of the city council. I prefer to refer to our plan of city government as the "council-manager" plan rather than the "city manager" plan. Without the support of an able city council the best-qualified city manager cannot do his best job. A factor of essential value was the expert guidance of our insurance engineer. We feel that it has accomplished three important things: Fewer of our workers have been injured and suffered the loss of pay that goes with layoffs. We have reduced the cost of our workmen's compensation insurance and saved the taxpayers an important sum of money. We have improved the quality and speed of some of our public services. The entire cost of safety features employed has been less than the savings for a single year on our insurance premiums.

1. Note hand-holds and ladder installed on garbage-collection vehicle to assist employees in loading trucks safely. 2. Good housekeeping pays. Omar Noble, Supervisor of Central Stores, stands near hand-tool racks. Behind him is fire-door-protected room for inflammable liquids. 3. Philip A. Moreau, Safety Director (left), and William J. Deegan, Jr., City Manager of Superior. 4. Special garbage racks supplied to citizens makes handling faster and freer from strain. No cans larger than these will be handled by city employees. 5. Additional safety equipment added to modern Load-Packer trucks includes large, safe hand-holds, large steps and special safety warning lights. 6. Carl Hanson, City Garbage Supervisor, points to outside gasoline tanks now required on all city trucks to eliminate fumes in cab. Note special lighting equipment on top of cab of this Dodge truck. 7. Showing of safety film.

Planning Aids For Connecticut Cities

Local officials help shape state agency's program for community development

By JAMES S. KLAR
Planning Engineer
Connecticut Development Commission
Hartford, Conn.

THE Connecticut Development Commission has devised a technique to help meet the growing requests from local planning and zoning officials for guidance in their routine and technical problems. There are 169 separate municipalities in Connecticut, of which 93 have zoning commissions and zoning boards of appeal. Fifty-one municipalities have planning commissions. Approximately 85% of the state's population lives in these communities. Through this multiplicity of official agencies there are nearly 1,400 individuals who are directly concerned with planning and zoning. These people seek help in handling their local problems. Planning engineers of the staff of the Connecticut Development Commission meet personally with local groups to give general organizational and administrative advice, but neither time nor funds are available to carry through with technical help. The commission is therefore publishing a series of concise and informative *Planning Aids* which it hopes will serve as guides to more comprehensive action by enlightened local agencies through self-help and with the assistance of professional consultants.

The *Planning Aids* on various subjects were initiated with the publication of state enabling legislation pertaining to planning and zoning. Subsequently, material was issued suggesting general procedure for making land-use studies and generalized rules and regulations for zoning boards of appeal.

Although certain subjects seemed basic to planning and zoning procedure, it was felt that a check of the opinions of those for whom the material was being prepared should govern the future priority of publications. Consequently a simple check-list was sent to all members of planning commissions, zoning commissions, and boards of appeal, building inspectors, town and city engineers, and town and city managers. The respondents were asked to judge the importance of the following items:

- Population distribution
- Population make-up
- Population growth
- Composition of local economy
- Theory and practice of "master planning"
- Primary street design
- Secondary street design
- Public transportation
- Traffic channeling
- Off-street loading
- Curb parking
- Street lighting
- Utilities
- Recreation facilities survey
- Park and playground location
- Small playground design
- Long-range capital improvement programming
- Community recreation centers
- Public school location
- School site design
- Libraries
- Health, safety and welfare
- Neighborhood shopping centers
- Civic centers for small towns
- Ultimate land use
- Zoning districts
- Rural zoning
- Airport zoning
- Building codes
- Subdivision design
- Subdivision regulations
- Organization and operation of planning commissions
- Organization and operation of zoning commissions

Returns were received from people

Rank Of Interest In Planning And Zoning Subjects Expressed By Connecticut Communities

SUBJECTS	Total Returns	COMMUNITIES Large	COMMUNITIES Medium	COMMUNITIES Small	OFFICIAL AGENCIES Planning	OFFICIAL AGENCIES Zoning	OFFICIAL AGENCIES Boards Of Appeal
Zoning districts	1st	4th	4th	3rd	—	1st	3rd
Organization and operation of zoning commissions	2nd	5th	3rd	4th	6th	1st	4th
Rural zoning	3rd	5th	4th	1st	5th	2nd	1st
Organization and operation of planning commissions	4th	4th	2nd	—	1st	4th	—
Theory and practice of master planning	5th	1st	7th	—	3rd	5th	5th
Subdivision regulations	6th	2nd	3rd	—	3rd	6th	6th
Building codes - small towns	7th	—	2nd	2nd	—	3rd	2nd
Subdivision design	—	3rd	—	7th	4th	—	5th
Civic centers	—	—	1st	5th	5th	4th	6th
Health, safety and welfare	—	—	—	6th	—	5th	5th
Neighborhood shopping centers	—	—	6th	—	7th	7th	6th
Public school location	—	—	5th	—	2nd	—	—
Ultimate land use	—	7th	—	—	6th	—	—
Community recreation centers	—	—	7th	—	—	—	6th
Recreation facilities survey	—	6th	—	—	—	—	—
Secondary street design	—	—	—	—	—	—	7th
Street lighting	—	—	—	—	—	—	7th
Long-range capital improvement programming	—	—	—	—	7th	—	—

To focus attention upon subjects of major interest, this table shows only those which placed at least seventh in one or more of the six categories.

representing 85% of all the communities in the state with planning and zoning agencies.

In order that the content of the leaflets be composed for those who were most interested, the returns were tabulated as follows: (a) communities—large, medium, and small; and (b) official agencies—planning, zoning, and boards of appeals. The accompanying table shows the relative position of the highest-ranking subjects which have been placed in order of decreasing importance on the basis of the total returns.

Many interesting observations may be made by comparing the ranks of individual subjects in the various categories. For instance, it is noteworthy that the need for master planning is recognized by the large city representatives; the subject ranked in seventh place by the medium-sized communities, and was not even placed importantly by the small community people. "Civic centers" and "public-school locations" are two subjects which do not place among the first seven items on a total return basis but are of considerable concern to medium-sized communities and planning commissions, respectively.

Scanning the subjects which ranked generally high in all categories, it appears that most interest lies in methods for strengthening the organizational and operational structure of local commissions dealing with planning and zoning. Even the subjects "zoning districts" and "rural zoning" are of a general nature, indicating a desire for understanding of basic problems. It is encouraging to find that "master planning" is *not*, after all, too greatly in disrepute, that people dealing with planning and zoning desire information on the broad concept which is so necessary to sound community development.

Apparently the meaning of the phrase "ultimate land use" is not generally understood, for it appears in a relatively poor position on the table. Logically it should rate as high as "theory and practice of master planning," for it is a fundamental part of devising the long-range development pattern. Evidently "long-range capital improvement programming" is not in the minds of many of the local planners as a part of their responsibility. The importance of these two factors of community development obviously needs some clarifying for Connecticut municipal officials.

Most Connecticut communities recognize that zoning is here to stay. It is quite apparent from the survey that the local planners and zoners are seeking to perfect their techniques. Their immediate specific interests relate, as may be expected, to problems affecting residential expansion. Evidently they are aware that the orderliness of community development will depend, in a large measure, upon the ability of the local planning and zoning officials to cope with intensified housing programs.

Re-Plumb Those Rest Rooms

DINGY and drab, with obsolete fixtures in a bad state of repair, the average so-called "rest room" in the typical public building leaves much to be desired and is, indeed, a far cry from the much-vaunted American standard of sanitation.

Add to it the conditions created by bad lighting and ventilation, and it is easy to imagine the impression that a visit to the typical public-building rest room leaves in the minds of the average citizen, taxpayer and voter about the standards of efficiency, cleanliness, competence, and the quality of over-all administration maintained by the offending local government involved. If it can't keep its own "house" in order, the citizen may think, how can it be expected to look after my affairs and those of my neighbors?

Typical of what can be done by rehabilitation of the plumbing fixtures, partitions, walls, lighting, and ventilation is the program recently completed in the courthouse at Frankfort, Ind. The "before" and "after" pictures below show some of the changes produced by modernization of the rest room.

The outmoded water closets, in poor operating condition, some with broken tanks, were replaced with new vitreous-china water closets. These are equipped with extended, reverse, trap bowls, flushed by smooth jet action. The insanitary trough-type urinals were replaced with the latest vitreous-china pedestal-type fixtures with siphon jet action controlled by a flush valve equipped with vacuum breaker.

For further attractiveness a new floor was laid, new tile walls were put in, and fluorescent lighting replaced the unsightly hanging bulbs. The battered wooden partitions between individual water closets were taken down and smooth metal enclosures installed which have durable doors to give further privacy.

Exposed piping, wooden partitions, and careless maintenance of plumbing are distinct health hazards in city, county, state, and federal buildings. The frequency of their use demands durable plumbing fixtures and piping as well as periodic inspection for repairs.

Remodeling of the water closets in the rest rooms included the installation of new closet bowls, flush valves, and partitions. Vacuum breakers on the water-closet piping prevent the possibility of back-siphonage, which would contaminate the pure-water supply.

After the street has been shaped to proper cross-section, the cement is applied by a Flynn spreader.

Why Alexandria, La., Uses Soil Cement Streets

By SOULE BUTLER
City Engineer
Alexandria, La.

Ten years of experience have shown high-quality results with low-cost construction when soil-cement has been used for a paving base

GOOD, serviceable streets that don't cost too much money seem to be the eternal goal of all cities, and Alexandria, La., has been no exception. The spectre that haunts every city engineer is that if he bears too hard on the "low-cost" side of the picture, he saddles his city with high maintenance costs that soon swallow the initial savings many times over. Consequently, when a city embarks on a low-cost paving program it should first make thorough and careful engineering studies of all aspects.

One of our first ventures in this type of paving took place during WPA days. At that time we paved a number of our streets with natural sand-clay-gravel mixed with emulsified asphalt. After a few years of service we found high maintenance costs on our hands and had to resort to heroic efforts to make the streets serviceable. These measures, incidentally, incorporated the use of soil-cement.

After that experience, we switched to soil-cement bases, building the first in 1938. To date we have laid about 300,000 square yards of pavement with this base and have found that it has provided the answer to the demand for hard-surface streets in residential areas. In our city we can place it for about 70% of the cost of a comparable 6-inch concrete pavement. Some of our soil-cement construction is carrying heavy buses in addition to the usual residential street load.

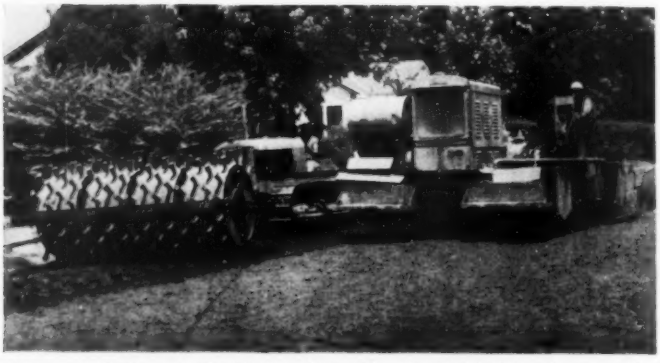
This type of paving received a tremendous boost in our city through the work of the late Ben Flynn. In 1936 he developed a machine that he felt would be useful for stabilizing old gravel roads. Practical use of it showed it more valuable in soil-cement stabilization. Some of our early work was done on a cost basis while his Flynn One-Pass stabilizer was still in development.

We built our first soil-cement street bases in 1938 and 1939 without curbs and gutters. We gave them a single-course surface treatment using cut-back asphalt and pea gravel. They received no maintenance until they were resealed in 1945 and gave us no trouble during the entire period.

We did learn, however, that we should give more attention to line and grade. Later we added the curb and gutter and found the cost uncomfortably high. Since 1944 we have built all soil-cement base paving with curb and gutter. We have surfaced them all with Uvalde rock asphalt with one exception. One block has a pre-mix consisting of crushed limestone and emulsified asphalt. We have experienced no maintenance difficulties on these streets, except for repairs of utility cuts where the backfill was inadequately compacted.

The use of soil-cement base construction required a certain amount of public education. When our people saw the construction for the first time, they expressed doubt that this mixture that "looked like dirt" would carry the traffic. As far as looks were concerned, they were absolutely right. The mix is dirt, with a little cement added. But the cement and the rolling supply the strength.

Most of our streets require regrading



The cement is then mixed with the soil by using the Roadbuilder shown on the right, and then compacted with the sheep's-foot roller shown on the left.

before they are ready for the paving. We have for years maintained a high crown on the dirt streets to insure good drainage. The contractors usually are able to dispose of the dirt easily, and to realize enough on it by its sale to adjacent property owners to pay for the excavation. Therefore the excavation item does not appear on our bids.

The soils that we stabilize consist of two types. One is an alluvial deposit, PTA type A-4. The other is a stiff clay. We make no effort to stabilize the latter because of the high cement content required and the difficulties of mixing. Laboratory tests show that the alluvial deposits can be stabilized with a cement content of 10 to 12% so we usually specify the higher figure on short jobs and hold to more specific laboratory tests on larger.

We always construct curbs and gutters well in advance of the balance of the paving. Because of weather conditions, we confine the base stabilization to the months of June through September.

Procedure

The first step is to shape the street to the typical base section, removing surplus or objectionable material, or bringing in material if needed. We next remove a strip of dirt about 12 inches wide and the depth of the base adjacent to the curb and gutter on both sides. A blade grader does this by using a special tool mounted on the end of the patrol blade. This protects the curb and gutter during the mixing work.

We next excavate by hand a transverse "header" strip about 4 feet wide and the depth of the base at the starting end. All the excavated material is placed in the street in order to insure a complete mixing job.

Bulk cement usually is utilized, rather than cement in sacks. It is applied by a belt-type spreader attached to the trucks for the full width of the street before work is started. This allows the inspector to check the cement applied and to correct any deficiencies.

The next operation is to mix the cement with the soil. We do this with a one-pass machine that mixes a strip 10 to 12 feet wide. Mixing is conducted at about 16% of the optimum moisture content. The machine adds the required water through spray nozzles.

Immediately following this comes the stabilizing operation. After the sheep's-foot rollers have made about 15 passes they will "walk out." On earlier work we tried giving the base a final rolling with a steel-tired roller, but investigations revealed that either a crusting or lamination occurred so this was discontinued. Our practice now is to keep the crown to typical section with a light patrol grader as the sheep's-foot roller packs out. We then compact the top with a pneumatic-tired roller until the entire surface is firm.

Officials examine the finished street ready for traffic.

During this work the surface of the soil-cement generally loses a great deal of moisture by evaporation. To compensate for the loss, we add water by a sprinkler truck as needed.

Our practice is to close the base to traffic for seven days after completion of the stabilization work, and keep the base moist with a sprinkler truck. At the end of this period, the base is opened to traffic for a period of 14 days. The traffic usually removes all soft material and discloses any weak spots. This period allows the contractor time to dig out manholes and valves, and to replace covers.

To carry stabilization over manholes and valves, we remove the covers, and place a steel plate over the opening just below the subgrade elevation. The plates are carefully located before being covered with soil-cement mix.

Following this 20-day period, we sweep the street clean and prime it for the wearing surface. We place the asphaltic surfacing material along the centerline of the base, windrowed with a patrol blade and rolled with a pneumatic-tired roller. The second half of the material is then spread with the patrol blade, shaped to the desired section and rolled with a steel-tired roller. The second rolling is needed only if the nights are cool. We never open streets to traffic if the weather is wet, since raveling occurs under these conditions.

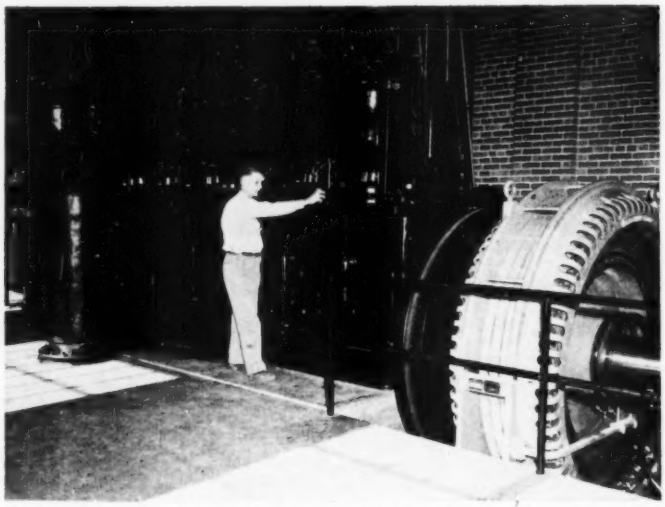
Alexandria depends on surface drainage for disposal of its storm water. We do not use storm sewers except in a few places. We raise the intersections to approximately one inch below the sidewalk grade and convey the water across the intersections with box drains on the curb line.

Individual blocks with their deep gutters act as reservoirs and often hold the rain for several hours before it flows away. Nevertheless this standing water has not damaged our soil-cement base streets.

For thorough mixings, the subgrade is pulled away from the curb and gutter.

SPRING VALLEY, MINN.,

Gets Electric-Plant Bonus



Superintendent Vickmark adjusts one of the big diesels that supply power to Spring Valley, where production of electricity is now over 2,000,000 kw-hrs.

Eleven years of municipal plant operation has produced increased use of electricity at reasonable rates, funds for a new sewage-treatment plant, new village hall facilities

IN SOUTHEASTERN MINNESOTA is a little community of something more than 2,500 people, named Spring Valley because it is an area of natural springs. The community also has a trout stream running through it.

Twelve years ago the village decided to cast off its dependence on high-voltage transmission lines for electric power and to operate its own municipal diesel electric plant. To finance this municipal improvement, it issued $45,000 in general obligation bonds. The ensuing eleven years have seen these goals attained:

1. The production of electricity has risen from 779,870 kw-hrs. in 1937-38 to 2,618,230 kw-hrs. in 1947-48, or nearly 3½ times the 1937 figure.

2. Of the general-obligation bond issue of $45,000, two-thirds of this has been paid out of plant earnings. More would have been paid had the bonds been callable.

3. In 1947 the electric utility transferred $50,000 from a new $150,000 revenue-bond issue to the village to make possible sewage-treatment-plant improvements. This represented a payment in lieu of a tax levy.

4. Plant earnings, besides meeting debt obligations of principal and interest, paid for nearly $75,000 worth of plant improvements, mainly to the distribution system.

5. At the end of the 1947-48 operation year, the system had current assets, in addition to the physical plant, amounting to $28,106, comprising cash on hand and in the bank, accounts receivable, accrued interest receivable, inventories, and $3,985 in United States bonds.

How the Plant Grew

At the start, the plant had two Fairbanks-Morse diesel units of 210 and 420 hp. Addition of a third unit of 450 hp in 1939 gave the plant a total generating capacity rated at 721 kw. In March 1948, after running occasional overloads the year before, the plant put in operation a fourth diesel of 1,200 hp, which raised the total to 2,280 hp and 1,561 kw.

In addition to the diesels with their belt-driven alternators, the plant has a Diesel Service Company coaling tower with water circulated through it by four pumps whose capacities range from 5 to 10 hp. Five Burgess silencers control the engine exhaust noise. Three American Air Filter Company filters clean the air before introducing it to the engines. Lubricating oil is purified by a Diesel Service Company batch filter and a Honan Crane continuous filter. The latter is used on the 1,200-hp engine.

The addition to the power building, making space for the new engine unit, also provides garage and storage space as well as police office space and a village-council room. All inside generating equipment is on the main floor, with space for expansion.

The skill of operation of the system can be reflected in the reduction of line loss during the 11 years of operation.

When the plant was first operated, the line loss was 14.8%. Now it has been reduced to 7.18%. Superintendent Osmund Vickmark reduces the line loss by preventing its causes.

Obstructions, especially trees, he reports, are the chief causes of the escape of energy. Since rain, snow, and frost settle on obstructions and increase conductivity, his crew keeps an eye out for them. Meters are checked regularly. He also makes it a point to shift transformers to have them fit the loads as closely as possible.

The electric rates charged to residents in Spring Valley are as follows:

14 kw-hr.	.....	$1.00 min.
26 " "	.....	5c per kw-hr.
60 " "	.....	4½c " " "
Excess at	.....	2½c " " "

Delinquent payments received an added 10% penalty. Other power rates are somewhat higher. The system also makes a water-heating rate of 1¼ cents per kw-hr. with a minimum monthly charge of $1.25.

When the year 1947-48 ended, energy was being served to 1,140 meters. There were 136 electric stoves and 215 electric water heaters. Major users of power included a creamery, a hatchery, two feed mills, a frozen-food locker plant, eight garage-machine shops, a greenhouse and a lumber yard using power saw and power conveyors for coal.

The electric plant supplies power to the water- and sewage-treatment plants at no charge. It also supplies, free, the power for street lighting. Altogether the free services supplied by the plant total $4,500 per year.

The plant and system are governed by an electricity commission appointed by the village board. During the past 11 years this commission has kept the same members. They include Joe Mlinar, Max Brehmer, and Harold Biel. Superintendent Vickmark doesn't limit his activities to the electric plant system. He is also a member of the School Board and secretary of the Commercial Club. Visitors at his plant have often said that when operating conditions get tough, as they did when fuel-oil prices jumped to 14.1 cents last year, he can always slip outside the back door and watch the trout in his backyard stream. This relaxation is not available to other plant operators.

People Are for Planning

By CHARLES R. WOOD
Senior Planner
City Plan Commission
Providence, R. I.

WITHIN the city planning profession it has become trite to say that *planning is for people*. In recent months in Providence, R. I., it has again been demonstrated rather forcefully that the converse is equally true—that *people are for planning*.

This has been indicated in Providence as an aftermath of an exhibit and of four Town Meetings, sponsored by the local Chamber of Commerce, the programs of which were reproduced in THE AMERICAN CITY for January 1949 (page 115).

Almost immediately after the fourth meeting the Rhode Island School of Design, evidently responding to an expressed public interest, suggested maintaining the exhibit for another six weeks. For this additional time the exhibit remained on view in a major center of community and educational activities.

Included in School Curriculum

At the end of this period, when the exhibit was scheduled for dismantling, the School Department came forward and requested permission to redesign the exhibit in substantially the same form, but on portable panels to permit its transportation to various schools within the City of Providence. The School Department also invited staff members of the City Plan Commission and the Redevelopment Agency to come into the schools and present talks on city-planning problems.

In this manner a program was set up whereby the traveling exhibit visited, for a period of one week each, the city's eight Junior High Schools. On one day during each of these weeks, a member of the City Plan Commission or Redevelopment Agency, or both, gave a discussion of work in city planning and showed Kodachrome slides illustrative of the special problems facing the City of Providence. A total of fourteen of these talks was given to audiences ranging from 200 to 600 pupils. Within the curriculum the exhibit and talks were geared specifically to the ninth-grade level and constituted a part of a unit in the Social Science curriculum.

Concluded in May, the program was considered so valuable that plans are being developed for preparing special pamphlet material on city planning for use in the public schools next year. Although the work was presented as a class assignment, teachers have been amazed at the interest and concern children have shown in the city's problems.

Said one lad in a talk before his class: "Our city is facing a crisis; she needs the support of every loyal citizen to clean up her poor areas, give her modern industrial plants, and straighten out her traffic problems. We, in the junior high schools, can help by studying the problems so that we will be able to solve them when we grow up."

Such an attitude holds a promise of informed citizen concern and action in the future. As one teacher exclaimed: "They have taken it to heart."

Part of the exhibit prepared by the Rhode Island School of Design.

Six-Year Public Housing Program Is Ready for Action

THE nation's new six-year program for providing 810,000 units of public low-rent housing for low-income families, authorized by the Housing Act of 1949, is now ready to go into action, the Public Housing Administration has announced.

Application forms and instructions for participation in the program have been mailed to about 500 local housing authorities located in 42 states. These authorities, as well as others which may be organized, will build, own, and operate the housing projects with federal financial assistance.

The application forms will serve two purposes. They will be used primarily to make reservations of specific numbers of dwelling units from the national program for the local authorities in communities desiring to take part in the program. They may also be used to apply for preliminary loans from the federal government to be used in starting plans for local programs of low-rent housing.

The distribution of these application forms is the first step in getting the new low-rent public-housing program into motion [according to John Taylor Egan, Commissioner of the Public Housing Administration]. We expect that local housing authorities will lose no time in completing their applications and returning them to us for consideration.

Many local authorities have informed us that their communities are anxious to proceed with local programs with all possible speed. Some of them have had preliminary plans in readiness for several years, awaiting the day when the necessary federal aid would be available to permit them to put their plans into operation.

. . . This program is essentially a local program. As in the previous program, the local housing authorities and not the federal government will build and operate the housing.

He explained that the Public Housing Administration's role is to provide financial assistance and to give supervision and guidance in carrying out the purposes of the progam. It may make capital loans amounting to as much as 90% of the development cost of a project. It also will contract with the local authority to pay annual cash subsidies toward the operation of the housing. Since the housing is to be rented to low-income families at rents they can afford to pay, the rental revenue from the projects will not be enough to pay all the costs of operating it and paying off the capital indebtedness. The purpose of the annual subsidy is to bridge the gap between rental income and the expense of operating the housing, including debt payment. This subsidy, together with local tax exemption, makes it possible to charge lower rents.

In submitting its application, the local authority is required to show data on the housing supply in its locality, including information on the extent of sub-standard housing and evidence of the extent of the unmet demand for low-rent housing by low-income families.

The Public Housing Administration will use these data to evaluate the request of the local authority for a program reservation. The information on the local need for the program will be carefully analyzed because the law requires that federal aid be made available only when the local authority demonstrates that its locality has a need for low-rent housing for low-income families that is not being met by private enterprise.

Yearly Output Can Be Varied

Although the total public-housing program authorized by the Housing Act of 1949 amounts to 810,000 units, only 135,000 units may be put under construction in each of the six years of the program. The President, acting on the advice of his Council of Economic Advisers, is empowered to speed up the program to a rate of 200,000 units a year or to reduce it to 50,000 units a year. The total program, however, may not amount to more than 810,000 units.

In spite of the considerable volume of work which must be done by a locality before a project can actually be placed under construction, housing officials expect that building will begin on about 50,000 units within the next 12 months. It is expected, however, that at least 135,000 units will be placed under reservation in the first year and that financial assistance contracts probably will be executed for 100,000 units.

Of the local housing authorities now in existence, 472 have had past experience in one or more of the public-housing programs administered by the Public Housing Administration, such as the pre-war low-rent housing program, the war-housing program or the post-war veterans' emergency-housing program. Eighty-six per cent of these authorities are in localities with populations of less than 100,000, and 63% are in places with less than 25,000. About 200 other housing authorities have been organized but have not yet participated in a federal program.

The program reservations to be made on the basis of the applications now being furnished to local authorities will not represent binding commitments of the Public Housing Administration to enter into contracts for capital loans or annual subsidy payments for the number of dwelling units reserved. A program reservation, however, will indicate PHA's intention to set aside enough loan and subsidy funds to cover that number of units for a specified time until the authority is able to prepare a specific local program and enter into a contract for financial assistance.

City Councils Must Approve Preliminary Loan Requests

The amount of a preliminary loan will be based on the number of units reserved for the locality. In order to qualify for a preliminary loan, the local housing authority must obtain approval of its request by its local governing body, such as the city council, within 90 days after a program reservation is issued to it. The contract for the preliminary loan must be approved by the President.

Once a local authority obtains a program reservation and a preliminary loan, if it desires one, it can then proceed to prepare a development program for its locality, enter into a contract with PHA for financial aid, plan its projects, acquire sites and call for bids on construction contracts.

Commissioner Egan has instructed the 10 field offices of the Public Housing Administration to assist local housing authorities in preparing their applications for participation in the program if help is needed. These offices are located in New York City, Philadelphia, Detroit, Chicago, Richmond, Atlanta, Fort Worth, Los Angeles, San Francisco, and Seattle.

Galveston and Norfolk Receive First Public Housing Allocations

GALVESTON, Texas, was the first city in the nation to be assigned a share of the low-rent public housing program. The honor went to the Texas city on August 16 when Commissioner John Taylor Egan, of the Public Housing Administration, signed a program reservation allocating 600 dwelling units to the Galveston Housing Authority for construction in the next two years.

The Authority plans to start building 400 of the units within 12 months, and 200 more in the succeeding year.

Norfolk, Va., was the second city to have public-housing units allotted to it. The Norfolk Redevelopment and Housing Authority's initial reservation of 3,000 units for the next two years was also approved on August 16.

Mansfield, Ohio, Improves Refuse-Collection Fleet

Simplified truck speeds work and cuts expense

By AL STRACHAN
Superintendent, Sanitation Department
Mansfield, Ohio

OUR city has celebrated its thirtieth year of refuse collection and disposal by adopting the use of a refuse truck that we feel meets all the requirements of good collection operation. It has an attractive enclosed body large enough to handle our refuse-collection needs. The body is watertight, and above all, simple to operate.

Mansfield began its refuse-collection service in 1919 with a horse and wagon. A few years later, we bought two hand dump trucks. These allowed the heavier material to reach its destination, but you could follow the daily routes taken by these vehicles from the trail of smelly juice left on the streets, to say nothing of the aroma when they passed you on the road.

To correct this, the city purchased two bucket-loading watertight tank-type garbage trucks. These proved to be a great improvement. However, they had rubber gaskets, which the acid from the garbage soon destroyed, and they were too complicated for the average employee on the refuse-collection route to operate. Therefore the maintenance cost was high.

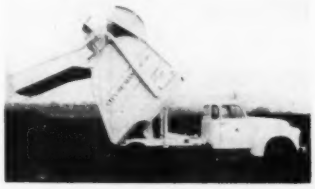
New Feature

When the writer first saw the Galion body, he was very much impressed with its simplicity. Having several of the Galion open-dump bodies in operation for several years, we knew that their hoists were dependable. Upon examination of the garbage body, we found that it worked from a single ram hoist with one pump. This was a new feature; other trucks required two hoists and pumps.

The ram simply pushes against this body, forcing the front end up, exactly as it does any open-dump truck. Two arms are attached to the sides of the body, about one-fourth of the body length from the front. These arms run just beyond the back end of the body and bend down; at this point, a one-yard trough is supported by the arms. This is the trough that receives the garbage and other refuse.

The new Mansfield collection truck with the body in the "down" position.

By tipping into this position, the loading trough is raised and emptied.



To empty, the tail gate is released by cables attached to the lifting arms.

When the trough is full, the operator pulls the hoist lever and the body goes up. This forces the two arms to raise the bucket. As it goes up, it opens a lid on the top-front of the bucket, causing it to tip forward and spill the container. The operation is then reversed. The body goes back down on the frame. The trough comes down ready for more garbage.

Each operation forces the material to the back of the body by gravity, creating a strong packing power. In fact, on a test run of wrapped garbage, we were able to pack it so tight that we had to use crowbars to get it out.

This feature saves us a great deal of time and expense, since there is no additional machinery to get out of order. All other packer-type bodies that we have had experience with have additional mechanisms to operate this feature. Some of the bodies have had no method of packing, which made the truck load very inefficient.

Loading and Unloading

When ready to unload, two cables attached to the tail gate are hooked to the bucket. Thus when the bucket goes up with cables attached, it automatically releases two safety locks, which hold the tail gate closed.

The average load varies with the type of garbage. The commercial averages from 5 to 6 tons per load, the domestic from 4 to 5 per load.

The body we have now is the small one, with a 9-yard capacity. We hope to have a 12-yard unit in the near future.

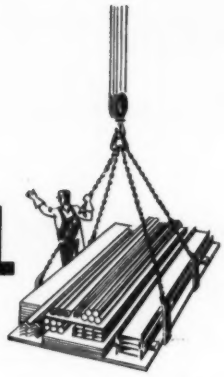
Two Engineers Receive Honorary Degrees

HONORARY doctors' degrees in engineering were awarded two engineers well known in the municipal field last month. One went to a consulting engineer; the other to a superintendent of water supply.

The consulting engineer was Francis S. Friel of Albright and Friel, Philadelphia, Pa., who received his degree from the Drexel Institute of Technology, his alma mater. Mr. Friel is a past president of the Pennsylvania Sewage Works Association; of the Philadelphia Section of the American Society of Civil Engineers; and of the Federation of Sewage Works Associations.

The water superintendent was Charles P. Hoover, for 40 years with the Columbus, Ohio, Water Department. He also was honored by his alma mater, Ohio University. The award recognizes the excellent work he has done in the fields of water softening and purification.

For STEEL



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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Restrictions on Minimum Size of Buildings —Residential and Commercial— Esthetic Zoning

TEXAS. *Thompson* v. *City of Carrollton*, 211 South Western (2d) 970 (Texas Court of Civil Appeals, April 15, 1948).

MASSACHUSETTS. *123 Main Street Corporation* v. *City of Brockton*, 84 North Eastern (2d) 13 (Massachusetts Supreme Judicial Court, February 4, 1949).

MR. JUSTICE HOLMES' famous dictum —"General propositions do not decide concrete cases" *—is a useful reminder in understanding zoning cases. The usual highly abstract criteria for regulation under the police power—public health, safety, morals, and welfare—provide very little help in passing on the constitutionality of specific zoning regulations. Actually zoning is concerned with regulating rather simple, definite things, largely physical. Use-zoning provisions regulate uses which create objectionable influences across property lines—such as physical dangers (explosives, noxious odors, etc.), nuisances (smoke, noise, etc.), traffic congestion, and certain types of unesthetic uses. Bulk-zoning regulations provide control over density —and, within each level of density, encourage the maximum in amenity, in terms of light and air, quiet and privacy, and usable open space. By controlling these things, zoning regulations will also indirectly provide protection for the value of property, for municipal revenues, and so on. When the constitutionality of zoning regulations is tested against fairly concrete goals such as those listed, it is possible to make some sense out of zoning decisions.

Extreme Types of Esthetic Zoning

Two recent decisions on regulating the minimum size of buildings at least have the merit of discussing the constitutional problem not as an abstract matter involving "public welfare," but in more definite terms. Restrictions in the minimum size of buildings have usually been held unconstitutional, and often with good reason. For residences, zoning regulations prescribing minimum bulk, cubage, or (occasionally) cost, usually represent attempts to use the powers of government to set aside certain areas exclusively for the higher-income groups. However, zoning regulations directed against people—especially on the basis of income—are quite improper in a democratic society, and the courts have usually invalidated such regulations. Zoning regulations prescribing minimum height and size for commercial buildings have quite generally been held unconstitutional. As is recognized in these two recent cases, both types of regulations represent at best a rather extreme type of esthetic zoning. And, as esthetic controls, they are dependent on a rather questionable proposition—that a small residential or commercial building can be assumed to be esthetically inappropriate among larger ones. Moreover, both raise one of the most serious unsettled questions in zoning law—how far zoning may go in requiring conformity to the character of the neighborhood.

"Fashionable Neighborhood" Consideration

The intermediate Texas Appellate Court at Texarkana approved the Carrollton ordinance on three grounds. First, the declaration of purpose in the Texas zoning enabling act—following a familiar form—contained references to conserving the value of buildings and encouraging the most appropriate use of land throughout the community. Second, relying on a previous Texas case, the Court held that

". . . the esthetic consideration is not to be ignored. Harmonious appearance, appropriateness, good taste and beauty displayed in a neighborhood not only tend to conserve the value of the property, but foster contentment and happiness among home owners . . . the beauty of a fashionable residential neighborhood in a city is for the comfort and happiness of the residents, and it sustains in a general way the value of the property in the neighborhood."

Finally, the Court went on at length restating the presumption that municipal legislative action is valid. In effect, then, this Court interpreted the minimum-size regulation as esthetic, and upheld esthetic zoning—at least for a "fashionable residential neighborhood."

In the Massachusetts case, the minimum-height restrictions in Brockton date from 1946. The existing buildings along the main street in the center of town were all three to five stories in height. In several instances outside investors bought buildings and made plans to build new one-story buildings, especially for chain-store use. As a result of local opposition, the regulations for the most intensive bulk district in Brockton were amended to create a new "central business area," six blocks in length along the main street, with the boundaries specified in the text of the ordinance. By a companion amendment a minimum-height limit for all future buildings in this area was set at two stories and 27 feet, and the two stories were required to extend back 60 feet (75 feet on corner lots). The petitioner brought an action for a declaratory judgment to establish his right to build a one-story structure within the area.

In the opinion the Court noted that, while there were no previous Massachusetts cases, zoning regulations prescribing a minimum size or height have generally been held to be void. In support of the amendments, the City suggested that they would (1) encourage the most appropriate use of land, (2) conserve the value of buildings and the character of the central area, (3) increase amenity in the municipality by preserving the symmetry of the central area against the appearance of "a carnival town," and (4) protect municipal revenues by preventing a dispersion of business development. The Court described these suggested grounds as vague and nebulous. It was pointed out that several of them were merely paraphrases of the enabling act, and the esthetic purpose and the city's desire to increase its tax revenues were held to be insufficient to validate this type of zoning regulation. The Court also noted that this section of the ordinance tended to work against other purposes of zoning as specified in the enabling act—to reduce overcrowding in the land and congestion in the streets in the central area, to provide adequate light and air, and to secure safety from fire and from panic.

Exclusion of Industry from Farming and Residential Area—County Zoning

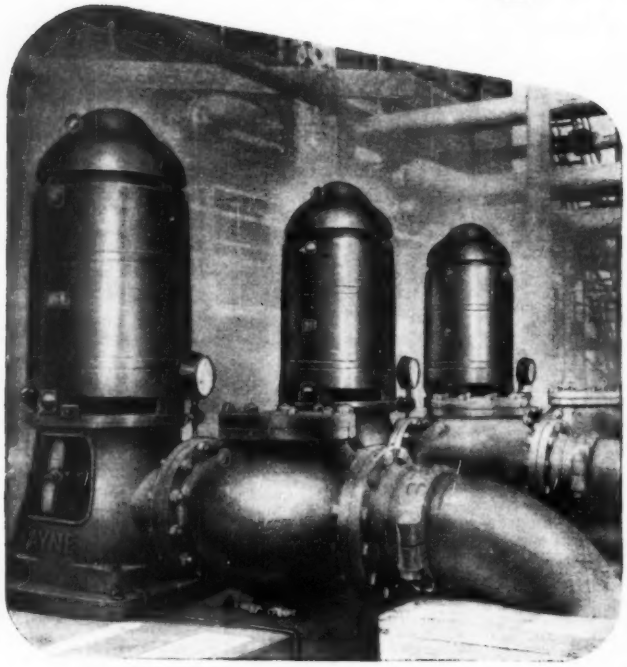
ILLINOIS. *Du Page County* v. *Henderson*, 402 Illinois 179, 88 North Eastern (2d) 720 (Illinois Supreme Court, January 19, 1949).

IN 1935, pursuant to the state enabling act, Du Page County—immediately west of Chicago—passed a zoning ordinance dividing its area into seven districts, each with progressively fewer restrictive-use regulations — i.e., estate, residence, farming, two business, and two industrial districts. While the largest percentage of the county's total acreage was devoted to farming, a considerable area was placed in the residental zones, and there were small business and industrial zones. The present case involved an area where residential subdivision was gradually extending into an area zoned for farming. One Henderson built a house there in 1941, and installed

(*Continued on page* 177)

* See *Lochner* v. *New York*, 145 U. S. 45, 74-75 (1905).

What About Checking On Operation Cost



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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Annexation—Survey Not Necessary Where Boundaries Are Definitely Marked Off

In action against city to enjoin annexation of certain land, held that proceedings for annexation were not fatally defective because no survey of area sought to be annexed accompanied petition, where plat accurately designating area did accompany petition, and boundaries of area were definitely marked off and capable of easy ascertainment by anyone interested. *Hughes* v. *City of Carlsbad*, 203 Pac. (2d) 995 (N. M., Mar. 9, 1949).

Assessments—Borough's Reduction of Assessments Without Statutory Authority

In action against borough challenging validity of resolution authorizing reduction of assessments on certain realty, held that taxpayer had legal status to challenge validity of resolution and borough council could not authorize such reduction without statutory authority. *Aichele* v. *Borough of Oaklyn*, 64 Atl. (2d) 924 (N. J. Super. Ct., Dec. 17, 1948).

Book Making—Right of City to Enjoin Notwithstanding Statute Permitting Bets at Race Track

In action by city to enjoin operation of "bookie joint," in which gambling on horse races was conducted, held that such establishments within city were illegal and could be enjoined as public nuisances, notwithstanding state statute permitting pari-mutuel betting at race tracks. *City of Sterling* v. *Speroni*, 84 N. E. (2d) 667 (Ill. App., Mar. 14, 1949).

City Employees — Employment of Skilled Worker Without Competitive Examination Declared Illegal

In action against City of Lackawanna to compel reinstatement of petitioner to his former position, held that evidence established that position requires knowledge and skill so as to require petitioner to satisfy test of merit and fitness by competitive examination, and since he failed to take examination, his appointment was illegal and he was subject to discharge at will without charges being preferred. *Sikich* v. *Hughes*, 87 N. Y. S. (2d) 195 (N. Y. Sup. Ct., App. Div., Mar. 2, 1949).

City Employees—Validity of Contract Agreement to Pay Moving Expenses To City

In action against city to enjoin payment of claim against city for expenses incurred by city employee in moving his family and household goods to city, held that city could be enjoined from payment of claim since city charter did not authorize such contract agreements. *Tenny* v. *City and County of Denver*, 203 Pac. (2d) 504 (Colo., Jan. 31, 1949).

Contracts—Statute Prohibiting City Officials from Having Interest in—Applicability to Town Official

In action against town on town orders payable at sight directing payment of obligation of town, held that statute prohibiting members of city government from having interest in municipal contracts does not apply to towns or officers of town so the selectman of town was not prohibited from recovery either as payee or endorsee of negotiable town orders. *Moore* v. *Inhabitants of Town of Springfield*, 64 Atl. (2d) 569 (Me., Feb. 28, 1949).

Intoxicating Liquors — Conviction For Sale of Without License on Testimony by Private Police

Where defendant was convicted of keeping for sale alcoholic beverages and of selling such beverages without city license and he appealed, held in affirming judgment that defendant's rights respecting testimony of private police or detectives acting in private capacity were adequately protected by instruction for jury to determine how much credibility it should give to testimony of witnesses and permitting defendant to testify that police were paid employees of private concern. *Davenport* v. *District of Columbia*, 65 *Atl.* (2d) 209 (W. C. Mun. Ct. App.) *Reh. den.* April 7, 1949.

Intoxicating Liquors—Power of City To Authorize License for Vacant Lot

In action against city to set aside license of plenary retail consumption license, held that city had power to approve transfer of license to vacant lot upon express condition that transfer should not become effective until licensee had completed erection of proposed building thereon. *Passarella* v. *Board of Commissioners of Atlantic City*, 64 Atl. (2d) 361 (N. J. Super. Ct., Mar. 7, 1949).

Loading Zones—Power of City to Prohibit Abutting Owner from Parking in

In action against City of Winchester to establish plaintiff's right to the free and exclusive use of an 8-foot parking space on public street near side door of his place of business, held that abutting owner's right of ingress and egress does not include privilege of storing his automobile on street in front of his property and city has power to prohibit parking in a space designated as loading zone. *Allsmiller* v. *Johnson*, 218 S. W. (2d) 28 (Ky., Jan. 25, 1949).

Nuisances—Excavations on Private Property City's Granting Permit for

In action to enjoin City of Los Angeles from granting permit to excavate on private property for commercial production of rock, sand, and gravel, held that in absence of showing that plaintiffs, property owners in area, would be injured by such operations, injunction would be denied. *Wheeler* v. *Gregg*, 203 Pac. (2d) 37 (Cal. App., Feb. 28, 1949).

Ordinances—Plumbers—Power of City to Supersede Act of State Legislature

In action against City of Binghamton to have declared invalid local law respecting plumbers, held that since matters relating to plumbing and drainage concern public health and are regulated by state, city was without power by local law to regulate same. *Ainslee* v. *Lounsberry*, 86 N. Y. S. (2d) 857 (N. Y. App., Mar. 9, 1949).

Policeman — Denial of Civil-Service Rights to Where Appointed For "Duration of War"

Where policeman who was over age limit accepted appointment to force of City of Portsmouth in 1943 for "duration of war," held that he acquired no rights under civil-service laws and could not complain of dismissal in 1945. *State v. Littleton*, 83 N. E. (2d) 67 (Ohio, Dec. 15, 1948).

Policemen—Persons Employed to Protect Property Acquired by City —Status As City Policemen

In action by plaintiffs who were employed to protect wharf company properties which were acquired by home-rule city, for compensation for services rendered allegedly as members of police department, held that evidence established that plaintiffs were members of city police department and as such entitled to statutory remuneration provided therefore when compelled to work seven-day week. *City of Galveston* v. *Winslow*, 218 S. W. (2d) 508, Tex. Cir. App. Feb. 24, 1949).

Real Estate Brokers—Validity of Ordinance Regulating

In action against city to enjoin enforcement of ordinance regulating real estate brokers, held that ordinances requiring licenses and payment of fee to engage in business of buying, leasing, and managing real estate for others was valid and within legislative powers delegating to city under its charter. *Alderson* v. *City of Huntington*, 52 S. E. (2d) 243 (W. Va., Mar. 1, 1949).

Sewer Systems—Validity of Statute Giving City Police Jurisdiction of Outside Corporate Limits

In action against city for declaratory judgment to determine validity of statute, held that statute granting cities of Mobile and Montgomery same power with reference to construction or reconstruction of sanitary sewer systems within police jurisdiction of each city as it has within its corporate limits would not be held invalid because proposed construction pursuant thereto would improve or enhance value of property lying outside corporate limits and require owners to pay greater ad valorem tax thereon. *Armstrong* v. *City of Montgomery*, 38 So. (2d) 862 (Ala. Sup. Ct., Feb. 17, 1949).

Sewers—Liability of City for Damages Caused by Private Sewer Maintained by City

In action against city to recover damages for settling of plaintiff's house due to break in private sewer maintained by city, held that in absence of evidence that flow of sewage through private sewer maintained by city or escaping sewage therefrom caused damages, city was not liable. *Doud* v. *City of Cincinnati*, 84 N. E. (2d) 924 (Ohio App., Dec. 29, 1948).

Streets—Injuries Caused by Fall In Unimproved Area Adjacent to —Liability of City

In action against city for injuries caused by fall into well, cesspool or sump hole in unimproved area adjacent to improved portion of platted street, held that the mere fact that area of underbrush and trees in natural state is in location which might reasonably be used as means of ingress to traveled portion of street does not charge city with duty to maintain such area in proper condition for use by pedestrians. *Gregory* v. *City of Seattle*, 203 Pac. (2d) 340 (Wash., Mar. 10, 1949).

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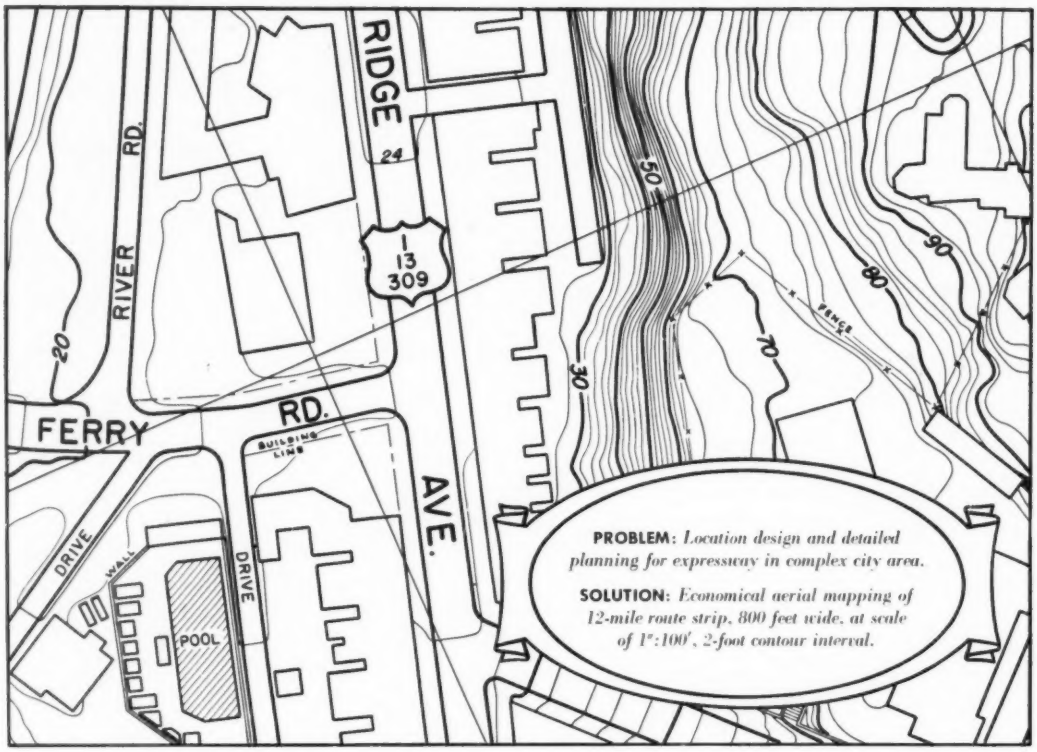

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Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

George Marsch, New Smyrna Beach, Fla.

William S. Coburn Annapolis, Md.

Donald L. Brown Wakefield, Mich.

James E. Morrison Ellensburg, Wash.

Earl A. White Boothbay Harbor, Me.

Fred M. Boone Colorado City, Texas

Bernard L. Marsh Guilford, Me.

R. J. Hayes Colby, Kans.

A. Page Lockard Salem, W. Va.

Frank Lawler Abilene, Kans.

EDWIN H. ALLEN, JR., former manager at Nevada, Mo., is the first manager for Cameron, Mo.

CORNELIUS BODINE, JR., graduate student, University of Pennsylvania, succeeded C. D. ADAMS at Kissimmee, Fla.

E. H. BROOME, city clerk, became the first manager at Monroe, N. C.

CARL S. BURBRIDGE, assistant manager at Hampton, Va., is the first manager at Princess Anne, Md.

DEAN C. CUSHING, graduate student, University of Maine, is the first manager for Derry, N. H.

ELMER F. EDGE, manager at Lindsay, Okla., succeeded A. E. J. JOHNSON at Cushing, Okla.

RANDY HASKELL HAMILTON, instructor, University of North Carolina, is the first manager for Carolina Beach, N. C.

AUSTIN P. HANCOCK, former manager at Amarillo, Texas, received the appointment at Port Arthur, Texas.

HOWARD H. KRAMER, manager at Petoskey, Mich., succeeded C. A. MILLER at Traverse City, Mich.

WILFRED A. LAKING, city treasurer, is acting manager at Ferndale, Mich., succeeding JAY F. GIBBS.

ROBERT F. MOTT, assistant manager, Glencoe, Ill., is the first manager at Galena, Ill.

GERALD M. PONTON, city engineer, succeeded H. C. GOOCH at St. Augustine, Fla.

JOHN D. PRESCOTT, acting manager, received the appointment at Mansfield, Mass., succeeding J. J. DESMOND.

THOMAS D. RASE, former city engineer, succeeded GILBERT RAY at Chapel Hill, N. C.

GEORGE S. RATTENBURY, former manager, Deland, Fla., received the appointment at Springfield, Ohio, succeeding OSCAR L. FLECKNER.

BILL REYNOLDS, local business man, succeeds ROBERT BAILEY at Stigler, Okla.

P. A. ROBERTS, assistant city manager, succeeded H. RUTTER at Gastonia, N. C.

REECE C. SNYDER, manager, Red Springs, N. C., is the first manager for Marion, N. C.

W. M. STEEVES succeeded O. H. MANUEL at Woodstock, New Brunswick, Canada.

G. O. SUMMERS, manager, Waxahachie, Texas, succeeded J. A. GIDDINGS, JR., at Longview, Texas.

DONALD P. WOLFER, assistant to the manager, San Diego, Calif., received the appointment at Albany, Ga.

CLARENCE E. RIDLEY, *Director*
International City Managers' Association
Chicago, Ill.

CORRECTION

In the June issue, Frank Wood, City Manager of Wichita Falls, Texas, was listed incorrectly as living in Big Spring, Texas. Mr. Wood was a resident of Fort Worth, Texas.

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

Sept. 6-7—Cooperstown, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Fall Meeting (Hotel Otesaga). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Sept. 6-16—Cambridge, Mass.
DEPARTMENT OF CITY AND REGIONAL PLANNING, M.I.T. Fall Conference. Professor F. J. Adams, M.I.T., Cambridge, Mass.

Sept. 7-9—Bedford, Pa.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Conference (Hotel Bedford Springs). Sec., Louis D. Brown, 30 Rockefeller Plaza, N. Y.

Sept. 8-9—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Conference (Hotel Nicollet). Sec.-Treas., R. M. Finch, 518 Metropolitan Life Bldg., Minneapolis 1, Minn.

Sept 8-10—Saranac, N. Y.
COUNTY OFFICERS' ASSOCIATION OF NEW YORK. Summer Conference (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown.

Sept. 11-15—Dallas, Texas
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Hotel Baker). Exec. Sec., Edward J. Kelly, 1424 K St., NW., Washington 5, D. C.

Sept. 12-13—Minot, S. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention, Exec. Sec., Myron H. Atkinson, City Auditor, 609 Thayer Ave., Bismarck, N. D.

Sept. 12-16—New Orleans, La.
NATIONAL RECREATION ASSOCIATION. Annual Congress (Municipal Auditorium). Sec., T. E. Rivers, 315 Fourth Ave., New York 10, N. Y.

Sept. 13-16—Dixville Notch, N. H.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Meeting (Hotel Balsams.) Sec., Joseph C. Knox, 204 Tremont Bldg., Boston 8, Mass.

Sept. 14-16—Battle Creek, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Meeting (Post Tavern). Exec. Dir., John H. Huss, 205 S. State St., Ann Arbor, Mich.

Sept. 14-16—Harrisburg, Pa.
AMERICAN WATER WORKS ASSOCIATION—Pennsylvania Section. Annual Meeting (Hotel Penn-Harris). Sec., L. S. Morgan, Dist. Engr., State Dept. of Health, Greensburg, Pa.

Sept. 14-16—Long Beach, N. Y.
MUNICIPAL ELECTRIC UTILITIES ASSOCIATION OF NEW YORK STATE. Annual Conference (Hotel Murida). Exec. Sec., B. N. Sparks, 93 Park St., Tupper Lake, N. Y.

Sept 18-21—Kansas City, Mo.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Congress (Municipal Auditorium). Exec. Dir., D. F. Herrick, 1313 E. 60th St., Chicago.

Sept. 19-21—Topeka, Kans.
THE LEAGUE OF KANSAS MUNICIPALITIES. Annual Convention (Municipal Auditorium). Exec. Dir., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 19-22—Boston, Mass.
NATIONAL TAX ASSOCIATION. Annual Conference (Hotel Statler), Sec., Ronald B. Welch, P. O. Box 1799, Sacramento 8, Calif.

Sept. 19-23—French Lick, Ind.
ILLUMINATING ENGINEERING SOCIETY. Annual Convention (Hotel French Lick Springs). Exec. Sec., A. D. Hinckley, 51 Madison Ave., New York, N. Y.

Sept. 20-22—Des Moines, Iowa
IOWA SEWAGE WORKS ASSOCIATION. Annual Meeting (Hotel Kirkwood). Sec.-Treas., Leo Holtkamp, P. O. Box 310, Webster City, Iowa.

Sept. 20-23—Detroit, Mich.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Convention (Hotel Book Cadillac). Exec. Sec., Frank L. Brunckhorst, 30 North LaSalle St., Room 831, Chicago, Ill.

Sept. 21-23—Atlanta, Ga.
GEORGIA WATER AND SEWAGE WORKS ASSOCIATION. Annual Water and Sewage School (Georgia Institute of Technology). Sec.-Treas., Leonard B. Waller, R.F.D. No. 12, Box 246, Atlanta, Ga.

Sept. 21-23—Fremont, Nebr.
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Pathfinder). Exec. Sec.-Treas., C. E. Beals, 407 Continental Bldg., Lincoln, Nebr.

Sept. 22-23—Colorado Springs, Colo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting (Hotel Acacia). Sec.-Treas., O. J. Ripple, 426 Cooper Bldg., Denver 2, Colo.

Sept. 22-23—Wheeling, W. Va.
AMERICAN WATER WORKS ASSOCIATION—West Virginia Section. Annual Convention (Olglebay Park). Exec. Sec., J. B. Harrington, Div. of Sanitary Engineering, State Health Dept., Charleston, W. Va.

Sept. 25-27—Joplin, Mo.
AMERICAN WATER WORKS ASSOCIATION—Missouri Section and MISSOURI WATER and SEWERAGE Conference. Joint Meeting (Hotel Connor). Sec., Warren A. Kramer, State Office Bldg., Jefferson City, Mo.

Sept. 25-28—Washington, D. C.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Meeting (Hotel Wardman Park). Sec.-Treas., Wilbur S. Smith, Strathcona Hall, New Haven 11, Conn.

Sept. 26-28—Schumacher, Ontario
CANADIAN INSTITUTE ON SEWAGE AND SANITATION. Annual Convention (McIntyre Arena). Sec.-Treas., Dr. A. E. Berry, Room 5503 Parliament Bldg., Toronto, Ontario, Canada.

Sept. 27-30—New Orleans, La.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Meeting (Hotel Roosevelt). Exec. Sec., D. B. Tierney, 8 Robbins Road, Arlington, Mass.

Sept. 28-Oct. 1—Portland, Ore.
LEAGUE OF OREGON CITIES. Annual Convention (Hotel Multnomah). Exec. Sec., Herman Kehrli, University of Oregon, Eugene, Ore.

***Sept. 29-30—Mammoth Cave, Ky.**
KENTUCKY MUNICIPAL LEAGUE. Annual Meeting (Hotel Mammoth Cave). Exec. Sec., Carl B. Wachs, Administration Bldg., University of Kentucky, Lexington 29, Ky.

Sept. 30-Oct. 1—Ann Arbor, Mich.
MICHIGAN SOCIETY OF MUNICIPAL PLANNING OFFICIALS. Annual Meeting. Sec.-Treas., R. C. Eastman, City Hall, Ann Arbor, Mich.

Sept. 28-30—Traverse City, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Hotel Park Place). Exec. Sec., Raymond J. Faust, Mich. Dept. of Health, Lansing 4, Mich.

Sept. 28-30—Rapid City, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Meeting (Hotel Alex Johnson). Exec. Sec., W. W. Towne, Division of Sanitary Engineering, State Board of Health, Pierre, S. D.

Oct. 2-4—Sheboygan, Wis.
WISCONSIN CHIEFS OF POLICE ASSOCIATION. Annual Conference (Hotel Foeste). Exec. Sec., Walter H. Wagner, Chief of Police, Sheboygan, Wis.

Oct. 2-6—Atlantic City, N. J.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Hotel Traymore). Gen. Sec., A. W. Baker, 292 Madison Ave., New York 17, N. Y.

Oct. 2-6—Boston, Mass.
THE ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Convention (Hotel Statler). Sec.-Treas., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

Oct. 5-7—Dickinson, N. D.
NORTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Convention (Hotel St. Charles). Sec.-Treas., Jerome H. Svore, State Health Dept., Bismarck, N. D.

Oct. 6-7—Burlington, Iowa
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Hotel Burlington). Sec., H. V. Pedersen, Supt. Water Works, Municipal Bldg., Marshalltown, Iowa.

Oct. 6-8—Winnipeg, Manitoba, Can.
NATIONAL CITIZENS' PLANNING CONFERENCE OF CANADA. Annual Meeting (Hotel Fort Garry). Exec. Dir., Alan H. Armstrong, 56 Lyon St., Ottawa, Canada.

***Oct. 8—Livingston, N. J.**
NEW JERSEY SEWAGE WORKS ASSOCIATION. Annual Outing (Doerr's Grove). Sec.-Treas., Michael S. Kachorsky, Box 283, Manville, N. J.

Oct. 9-11—Roanoke, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Meeting (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 902 Travelers Bldg., Richmond, Va.

Oct. 9-12—Oklahoma City, Okla.
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Hotel Biltmore). Sec., L. A. Jackson, Mgr., Municipal Water Works, Municipal Auditorium, Little Rock, Ark.

Oct. 10-12—Springfield, Ill.
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Leland). Exec. Dir., A. L. Sargent, 537 South 4th St., Springfield, Ill.

Oct. 10-12—Cleveland, Ohio
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Hotel Statler). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

Oct. 10-13—Pittsburgh, Pa.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Convention (Hotel William Penn). Sec., Irvin Shulsinger, 8 E. 41st St., New York, N. Y.

Oct. 10-14—San Antonio, Texas
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Meeting (Hotel Gunter). Exec. Sec., Hal H. Hale, 1220 National Press Bldg., Washington 4, D. C.

Oct. 11-13—Milwaukee, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting (Hotel Schroeder). Exec. Sec., L. A. Smith, Supt. of Water Works and Sewerage, City Hall, Madison 3.

Oct. 12-13—Des Moines, Iowa
LEAGUE OF IOWA MUNICIPALITIES. Annual Meeting (Hotel Fort Des Moines). Sec., Max A. Conrad, Tama Bldg., Burlington, Iowa.

Oct. 12-19—Buenos Aires, Argentina
THIRD INTER-AMERICAN MUNICIPAL HISTORICAL CONGRESS. Annual Congress. Sec. Gen., Jose L. Franco, Instituto Interamericano de Historia Municipal E Institucional, Cuba 316, La Habana, Cuba.

Oct. 16-18—Wichita, Kans.
KANSAS ASSOCIATION OF MUNICIPAL UTILITIES. Annual Meeting (Hotel Broadview). Sec.-Treas., E. P. Schowalter, Board of Public Utilities, Kansas City 14, Kans.

Oct. 16-19—Seattle, Wash.
AMERICAN CHAMBER OF COMMERCE EXECUTIVES. Annual Conference (Olympic and New Washington Hotels). Exec. Sec.-Treas., Elizabeth Glenn, 1615 H St., NW., Washington 6, D. C.

Oct. 17-19—Pittsburgh, Pa.
WATER CONFERENCE OF THE ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA. Tenth Annual Conference (Hotel William Penn). Chairman, H. M. Olson, Hotel William Penn, Pittsburgh, Pa.

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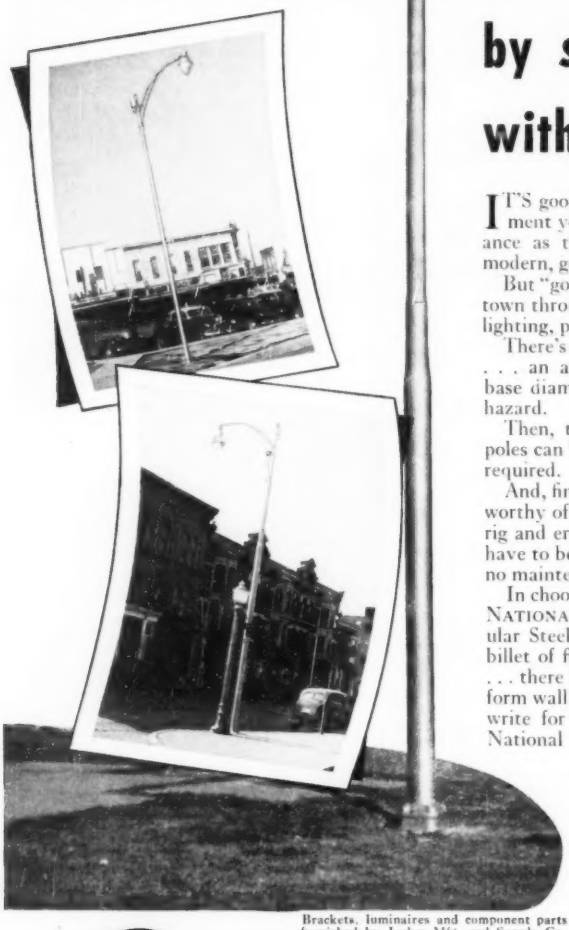

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UNITED STATES STEEL

Oct. 17-20—Boston, Mass.
FEDERATION OF SEWAGE WORKS ASSOCIATION, and NEW ENGLAND SEWAGE WORKS ASSOCIATION. Joint Meeting (Hotel Statler). Exec. Sec., W. H. Wisely, 323 Illinois Bldg., Champaign, Ill.

Oct. 18-20—Madison, Wis.
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention (Hotel Loraine). Exec. Sec., Frederick N. MacMillan, 30 East Johnson St., Madison 3, Wis.

Oct. 19-21—Jackson, Miss.
AMERICAN WATER WORKS ASSOCIATION — Alabama-Mississippi Section. Annual Meeting. Sec., John L. Snow, Layne-Central Co., 601 First National Bank Bldg., Montgomery 4, Ala.

Oct. 19-21—Winston Salem, N. C.
NORTH CAROLINA LEAGUE OF MUNICIPALITIES. Annual Convention (Hotel Robert E. Lee). Exec. Sec., Mrs. Davetta Steed, 1809 Raleigh Bldg., Raleigh, N. C.

***Oct. 20-21—Brookline, Mass.**
MASSACHUSETTS FEDERATION OF PLANNING BOARDS. Annual Meeting (Hotel Beaconsfield). Miss M. T. Downey, Clerk, Room 43, City Hall, Boston, Mass.

Oct. 23-26—San Francisco, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Meeting. Exec. Dir., Richard Graves, Hotel Claremont, Berkeley, Calif.

Oct. 24-25—Pocono Manor, Pa.
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Conference (Pocono Manor Inn). Asst. Sec., Charles F. LeeDecker, 103 Sparks Bldg., State College, Pa.

Oct. 23-26—Cleveland, Ohio
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Meeting. (Hotel Cleveland). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington, D. C.

Oct. 24-25—Roanoke, Va.
AMERICAN WATER WORKS ASSOCIATION — Virginia Section. Annual Convention (Hotel Roanoke). Exec. Sec., W. H. Shewbridge, Room 713, State Office Bldg., Richmond, Va.

Oct. 24-27—San Francisco, Calif.
CIVIL SERVICE ASSEMBLY. Annual Conference (Hotel Palace). Dir., J. J. Donovan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 24-27—Galveston, Texas
LEAGUE OF TEXAS MUNICIPALITIES. Annual Meeting (Hotel Buccaneer). Exec. Dir., E. E. McAdams, 2220 Guadalupe St., Austin 21, Texas.

Oct. 24-27—Coronado, Calif.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Conference (Hotel Del Coronado). Exec. Dir., A. W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 24-28—New York, N. Y.
AMERICAN PUBLIC HEALTH ASSOCIATION. Annual Meeting (Hotels Statler and New Yorker). Exec. Sec., Dr. Reginald M. Atwater, 1790 Broadway, New York, N. Y.

Oct. 24-28—Chicago, Ill.
NATIONAL SAFETY CONGRESS AND EXPOSITION OF THE NATIONAL SAFETY COUNCIL. Annual Congress (Hotels Stevens, Congress, Palmer House, Sherman, Morrison). Gen. Sec., R. L. Forney, 20 North Wacker Drive, Chicago 6, Ill.

Oct. 25-28—Atlantic City, N. J.
PENNSYLVANIA WATER WORKS ASSOCIATION. Annual Meeting (Hotel Claridge). Sec.-Treas., C. M. Hartman, 510 Telegraph Bldg., Harrisburg, Pa.

***Oct. 26-28—Sacramento, Calif.**
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting. Sec., H. C. Melberv, Water Dept., 425 Mason St., San Francisco, Calif.

***Oct. 26-28—Joplin, Mo.**
MISSOURI MUNICIPAL LEAGUE. Annual Meeting (Hotel Connor). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

Oct. 27-29—St. Louis, Mo.
ILLINOIS ASSOCIATION OF PARK DISTRICTS. Annual Convention (Hotel Statler). Exec. Sec., Marjorie M. Dickinson, 401½ East Capital, Springfield, Ill.

Oct. 31-Nov. 2—Lexington, Ky.
AMERICAN WATER WORKS ASSOCIATION—Kentucky-Tennessee Section. Annual Meeting (Hotels Phoenix and Lafayette). Sec.-Treas., R. P. Farrell, 420 Sixth Ave., No. Nashville 3, Tenn.

Oct. 31-Nov. 3—Washington, D. C.
BUILDING OFFICIALS' CONFERENCE OF AMERICA. Annual Convention (Hotel Wardman Park). Exec. Sec., George Slenker, Building Inspector, 626 Linden St., Allentown, Pa.

***Nov. 2-4—Washington, D. C.**
AMERICAN SOCIETY OF CIVIL ENGINEERS. Annual Meeting (Hotel Statler). Exec. Sec., Col. William N. Carey, 33 W. 39th St., New York 18, N. Y.

Nov. 2-4—Washington, D. C.
AMERICAN WATER WORKS ASSOCIATION—Chesapeake Section. Annual Meeting (Hotel Wardman Park). Sec., Carl J. Lauter, 5902 Dalecarlia Pl., NW., Washington 16, D. C.

Nov. 3-4—Dayton, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Conference. Sec., F. P. Fischer, Sales Engr., Wallace & Tiernan Co., Inc., 812 Perry Payne Bldg., Cleveland 13, Ohio.

Nov. 7-9—Southern Pines, N. C.
AMERICAN WATER WORKS ASSOCIATION—North Carolina Section, and NORTH CAROLINA SEWAGE WORKS ASSOCIATION. Joint Meeting (Hotel Highland Pines). Sec.-Treas., E. C. Hubbard, care State Board of Health, Raleigh, N. C.

Nov. 11-13—Yuma, Ariz.
AMERICAN WATER WORKS ASSOCIATION—Arizona Section. Fall Conference (Hotel San Carlos). Exec. Sec., Mrs. Helen Rothaus, Bureau of Sanitation, Phoenix, Ariz.

Nov. 13-16—Boston, Mass.
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Meeting (Copley Plaza). Exec. Dir., John M. Dacey, 1313 East 60th St., Chicago 37, Ill.

Nov. 14-16—Orlando, Fla.
AMERICAN WATER WORKS ASSOCIATION — Florida Section. Annual Meeting (Hotel Orange Court). Sec., A. E. Williamson, Jr., P. O. Box 1131, Daytona Beach, Fla.

Nov. 15—New York, N. Y.
REGIONAL PLAN ASSOCIATION, INC. Fourth Regional Plan Community Conference (Hotel Roosevelt). Exec. Vice-Pres., C. McKim Norton, 205 E. 42nd St., New York, N. Y.

Nov. 15-16—Little Rock, Ark.
ARKANSAS MUNICIPAL LEAGUE. Annual Convention (Hotel Marion). Exec. Dir., Glenn G. Zimmerman, 401 Main St., North Little Rock, Ark.

Nov. 17-19—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION — New Jersey Section. Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Wallace & Tiernan Co., Inc., Box 178, Newark 1, N. J.

Nov. 27-28—St. Paul, Minn.
NATIONAL ASSOCIATION OF CIVIC SECRETARIES. Annual Conference (Hotel Lowry). Sec., Hazelle B. Scott, Hotel William Penn, Pittsburgh, Pa.

Nov. 27-Dec. 2—New York, N. Y.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS. Annual Meeting (Hotel Statler). Sec., C. E. Davies, 29 W. 39th St., New York, N. Y.

Nov. 28-30—St. Paul, Minn.
NATIONAL MUNICIPAL LEAGUE. Annual Conference on Government (Hotel Lowry). Exec. Sec., Alfred Willoughby, 299 Broadway, New York 7, N. Y.

Nov. 30-Dec. 2—Cleveland, Ohio
AMERICAN MUNICIPAL ASSOCIATION. Annual Meeting (Hotel Cleveland). Exec. Dir., Carl H. Chatters, 1313 E. 60th St., Chicago 37, Ill.

Nov. 30-Dec. 2—Atlantic City, N. J.
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. Annual Conference (Chalfonte-Haddon Hall). Sec., Madeleine S. Frost, 1212 Trenton Trust Bldg., Trenton 8, N. J.

Dec. 1-3—Washington, D. C.
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Meeting (Hotel Statler). Acting Dir., Guy R. Justis, 1313 E. 60th St., Chicago 37, Ill.

Dec. 4-8—Palm Beach, Fla.
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference (Hotel Whitehall). Exec. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

Dec. 5-7—Kansas City, Mo.
NATIONAL ASSOCIATION OF MUNICIPAL LAW OFFICERS. Annual Conference (Hotel Muehlebach). General Counsel, Charles S. Rhyne, 730 Jackson Place, NW., Washington, D. C.

Dec. 5-7—Albany, Ga.
AMERICAN WATER WORKS ASSOCIATION—Southeastern Section. Annual Meeting (Hotel Gordon). Sec.-Treas., T. A. Kolb, 435 Wade Hampton Bldg., Columbia, S. C.

***Dec. 12-16—Washington, D. C.**
HIGHWAY RESEARCH BOARD. Annual Meeting (National Academy of Sciences Building). Exec. Dir., Roy W. Crum, 2101 Constitution Ave., NW., Washington 25, D. C.

***Jan. 17—New York, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Winter Luncheon Meeting (Hotel Statler). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York, N. Y.

Police, Traffic, and Transit in Portland

(*Continued from page* 103)

mittee on Terminals, Railroads and Commercial Vehicles, Mass Transportation Committee, and Women's Activities Committee.

One of the recommendations which came out of the recent President's Highway Safety Conference at Washington, D. C., was that there should be "organization in every state, city and community of a committee for the coordination of official functions dealing with highway transportation, and establishment of an organization to furnish cooperation and support for the official traffic safety program and its activities." It is felt that we have such an organization in Portland.

This year, Portland is fortunate in having a fine traffic safety record. Although eight people were killed in traffic accidents within the city during the first six months, this figure compares very favorably with 18 deaths last year and 32 in 1947 for the same period. And, this year, Portland motorists drove 98 days without a fatal traffic accident, breaking the previous record by 53 days. The extent to which the coordinated plan of action can be credited for this fine traffic-safety record is impossible to determine, but it no doubt was a contributing factor.

Chicago Will Install 1,000 Bus-Stop Signs

CHICAGO Transit Authority and the City of Chicago will cooperate in the installation of permanent "Bus Stop—No Parking" signs. The initial program provides that 1,000 signs will designate bus-stopping zones 85 feet in length in congested areas along 15 streets which carry dense vehicular traffic. The new signs, 18 by 24 inches, are prepared in red letters on a white field.

New "Stars"

ON HOLLYWOOD BOULEVARD...

play leading role in traffic safety

HERE, in Los Angeles, as in every busy city and town, modern street lighting takes the lead in a successful fight against nighttime traffic hazards and helps combat delinquency, vandalism and other crimes.

And from coast to coast you'll find Monotube tapered steel lighting standards doing a highly efficient job in their "supporting" role. These strong, durable standards require little maintenance, contribute welcome daytime attractiveness, and are designed in ideal proportions for varying needs. For complete details get in touch with The Union Metal Manufacturing Co., Canton 5, Ohio.

DELIVERIES WHEN YOU NEED THEM

UNION METAL

Monotube Street Lighting Standards

Municipal and Civic Publications

Chicago's Commuting Problem

THE DAYTIME POPULATION OF THE CENTRAL BUSINESS DISTRICT OF CHICAGO — *By Gerald William Breese. University of Chicago Press, 5750 Ellis Ave., Chicago 37, Ill. 267 pp. 1949. $6.*

Sponsored by the Chicago Community Inventory of the University of Chicago, this study focuses particular attention on the transportation factors involved in the movement of people to and from the Chicago central business district. It consists of a descriptive-analytical case study of the daytime population of the district of a typical week day in May 1940, together with a description of trends in the daytime population from 1926 through 1946.

The present study represents one of the first comprehensive efforts to depict the magnitude and the character of this problem for a large American city. By determining the number and the sources and the purposes of people who visit the Chicago central business district, and by depicting the means of transportation that they use, the author has found a way of describing the nature of the problem and laying bare the factors that must be considered in any attempt to solve it. The study contains a wealth of general background and bibliographical material.

County Health Department

COOPERATIVE HEALTH ADMINISTRATION IN METROPOLITAN LOS ANGELES—*By Margaret Gorsuch Morden and Richard Bigger. Bureau of Governmental Research, University of California, Los Angeles. 1949. 52 pp. 50 cents.*

Intergovernmental cooperation at the local level in Metropolitan Los Angeles health administration is here traced from its legal and historical beginnings to the present status of 40 incorporated communities being served under contract by the Los Angeles County Health Department. The organization of the County Health Department and its program are described and illustrated by charts and tables. The five large non-contracting cities within Los Angeles County which still maintain their own health departments are discussed separately.

Low-Cost Housing Designs

LOW-COST HOMES FOR THE AVERAGE WAGE EARNER—*Prize winning designs sponsored by the Institute of Housing and Planning Studies. New York State Division of Housing, 270 Broadway, New York 7, N. Y. 1949. 64 pp. 50 cents.*

This handsome brochure presents 43 prize-winning architectural designs in competitions sponsored by the New York State Division of Housing to help develop ideas and plans for sale and rental housing for moderate-income families. The book presents 24 designs for 2-bedroom single-family homes and 19 designs for 80-family garden apartment developments. These were selected from more than 300 entries by a jury of 10 outstanding architects. Cash prizes totaling $3,600 were awarded.

The brochure also includes specifications for the competitions, jury comments, and architectural background notes on the designs written by the individual winners.

Buffalo's Population of the Future

LOOKING AT BUFFALO'S POPULATION IN 1975—*Buffalo City Planning Commission, Buffalo, N. Y. April 1949. 25 pp.*

This analysis of past trends in population growth and composition, and a tentative forecast for the future, is notable for the simplicity and effectiveness of its presentation, and the excellent illustrative material which it contains.

Private Off-Street Parking Solutions

OFF-STREET PARKING, WHAT IS BEING DONE ABOUT TODAY'S OFF-STREET PARKING PROBLEM BY PRIVATE ENTERPRISE—*Transportation and Communication Department, Chamber of Commerce of the U. S., Washington, D. C. 1949. 38 pp. 40 cents.*

An attractively illustrated brochure, aimed at businessmen, reviewing major aspects of the off-street parking problem. There are a number of photos of recently completed parking garages in the report, and a list of selected references.

Taxes in Kentucky

A REPORT ON TAXATION—*Committee for Kentucky, 506 South Third St., Louisville 2, Ky. 1949. 32 pp.*

An excellent report prepared by Dr. James W. Martin of the University of Kentucky, which analyzes by means of graphs and charts every aspect of taxation in the State of Kentucky, and makes comparisons with the taxation systems of other states. A plan of action is included at the rear of the report, prepared by a special committee headed by Wilson W. Wyatt, former Mayor of Louisville. The action program recommends improvements in local property-tax administration, with special attention given to assessment problems.

Fire Insurance Guide

THE ADMINISTRATION OF FIRE INSURANCE ON MUNICIPAL BUILDINGS IN NEW HAMPSHIRE—*By Joseph R. Coupal, Jr. Bureau of Government Research, University of New Hampshire, Durham, N. H. Winter 1949 issue of New Hampshire Town and City Notes. 15 pp.*

Recommendations for a procedure to be followed in approaching the municipal insurance problem and helping local officials to realize a better return for their insurance dollar are contained in this concise pamphlet.

Redevelopment Area Report

EAST POPLAR REDEVELOPMENT AREA PLAN—*Philadelphia City Planning Commission. 18th Floor, Market Street National Bank Bldg., Juniper and Market Sts., Philadelphia 7, Pa. August, 1948. Tables. Maps. 21 pp.*

This recently released report of the first redevelopment plan of the Philadelphia City Planning Commission covers a 50-block area in the north-central section of the city. The plan, one of the best for a redevelopment area that has yet been published, is unique because it proposes the interweaving of rehabilitated existing houses with new housing units, thus preserving some of the existing desirable neighborhood characteristics.

One block in the area is to be rehabilitated with the cooperation of the American Friends. Other public and private improvements will progress in stages under the over-all framework recommended in the report.

A Municipal Commemoration Booklet

SUMMIT'S STORY, A CHRONICLE FOR THE CITY OF SUMMIT ON ITS FIFTIETH ANNIVERSARY—*By E. Robin Little. Available from Harry C. Kates, Executive Secretary, Common Council, Municipal Bldg., Summit, N. J. 1949. 84 pp. $1.*

An exceptionally well-edited and well-printed commemoration booklet, which sketches in colorful outline the history of Summit, N. J., points up its distinguished features, and aligns and interprets the broader influences that have developed the city. A large number of historical maps and photographs are included.

Municipal Law Yearbook

MUNICIPALITIES AND THE LAW IN ACTION, 1949—*Edited by Charles S. Rhyne, National Institute of Municipal Law Officers, 730 Jackson Place, NW., Washington 6, D. C. 441 pp. $10.*

This is the 12th in the series of volumes published by NIMLO summarizing the developments in the field of municipal law and the experiences of the preceding year. The volume consists of the full texts of each of 19 committee reports, as well as the full texts of all discussions which took place at the 1948 Annual Conference of the Institute.

Specialized subjects are also treated through the reproduction of research papers on such topics. Some examples are: "Comments on the Conduct of a Telephone Rate Proceeding," "Municipal Taxation of Radio Stations," and the recently adopted "New Jersey In Rem Foreclosure Act." There are discussions of the Los Angeles loyalty-oath program, overtime compensation for city employees, advantages and disadvantages of city-county consolidation, an extended bibliography on the question of home rule for municipalities, architectural control of buildings, and an analysis of municipal liability in connection with natural streams and water courses.

The reports of the various committees cover the subjects of taxation and revenues, internal revenue code amendments, city officer and employee problems, airport legal problems, public utilities, public housing, blighted area elimination, federal-city relations, civil defense, municipal revenues from federally owned property, city-state relations, inter-municipal cooperation, zoning and planning, civil liberties, tort liability, ordinances and ordinance enforcement, contracts and municipal bonds.

The volume is indexed so as to provide ready reference to its contents.

Economic Valuation of a Freeway

ECONOMIC EVALUATION OF THE GULF FREEWAY—*Department of Traffic and Transportation, City of Houston, Texas, July 1949. Illus. Tables. Charts. 26 pp.*

An interesting report which estimates the monetary value of annual time savings of the completed section of the Gulf Freeway at $2,688,681, compared with the construction and right-of-way costs of $11,000,000. The report concludes that a modern freeway is a "necessity" and not a "luxury" and that the relatively higher construction costs may be justified as a sound investment in the provision of efficient motor vehicle transportation.

Building Code for Signs

AMERICAN STANDARD BUILDING CODE REQUIREMENTS FOR SIGNS AND OUTDOOR DISPLAY STRUCTURES—*American Standards Association. 70 E. 45th St., New York 17, N. Y. A60.1-1949. 16 pp. 50 cents.*

The standard provides technically sound requirements for design, erection, and maintenance of signs and structures carrying messages to the public. The standard stipulates the height limits for signs—both roof and ground signs—and also contains a tabulation of wind pressures for signs of different heights.

Readers of THE AMERICAN CITY should be warned, however, that in the drafting of this standard, esthetic or social problems were not considered. Engineering problems alone have guided the committee in specifying height limitations, which are consequently more liberal than in many existing codes. Communities would be unwise to adopt the provisions of this code if they do not have other controls on billboard placement and location, such as are or should be found in zoning ordinances.

Better Highways for Better Cars

AUTOMOTIVE TRANSPORTATION TRENDS AND PROBLEMS—*By Wilfred Owen. Published by The Brookings Institution, 722 Jackson Place, Washington 6, D. C.* 1949. 154 *pp.* $2.

The 40 million registered vehicles on the roads of the United States during 1948 and the estimated 400 billions of miles they covered, highlight the constant need for new and improved highways and for continuing technological improvements in the cars themselves. This little book examines the problems of both industry and government in meeting, respectively, the heavy demands for good, new, reasonably priced cars and for highways capable of serving them.

Higher Living Standards For All

U. S. A.—MEASURE OF A NATION—*By Thomas R. Carkasdon and Rudolf Modley. The Macmillan Co., 60 Fifth Ave., New York, N. Y.* 1949. 101 *pp.* $1.

This study, based on a larger volume brought out by the Twentieth Century Fund in 1947, entitled *America's Needs and Resources*, presents to the general public the idea that by stepping up our expected production in all lines by 8%, we could secure for all Americans by 1960 adequate standards of food, housing, education, and medical care. Our record of long-term advance, which has persisted in spite of depressions and set-backs, is projected to 1960 and paints a rosy picture of potentials in the United States. Many graphic charts add to the clarity of the presentation.

The study believes that it would cost an estimated $77,500,000,000 to get rid of all our city slums and blighted areas and to provide everyone of our familes living in towns and cities (as of 1940) with a decent, minimum-standard dwelling in a satisfactory neighborhood. Community leaders would do well to review the statistics presented in this booklet and estimate how their own communities match up.

Latin American Housing

LOW-COST HOUSING IN LATIN AMERICA—*By Francis Violich. Edited by Anatole Solow. Pan American Union, Washington, D. C.* 1949. 93 *pp.* $1.

This study analyzes the needs for low-cost housing in 20 Latin American countries, traces the early efforts to improve conditions, and describes the administrative, legal, and financial methods under which housing programs are presently operating. Pictures of recent housing developments are generously used to illustrate the text.

Public Welfare Directory

THE PUBLIC WELFARE DIRECTORY, 1949—*American Public Welfare Association, 1313 E. 60th St., Chicago 37, Ill.* 343 *pp.* $3.50.

Public-welfare agencies or agencies expending public-welfare funds are listed, with their addresses and directors' names, in the tenth annual edition of this directory. State public-welfare departments and other related state agencies are included, as are regional personnel for both the Bureau of Public Assistance of the Social Security Administration and the Veterans' Administration. Local public-welfare agencies serving cities of over 30,000 population are given for states which have county programs, and the directors of county-welfare departments are also listed. A section on Canada is included.

Fire Volunteers' Stories

FIREHALL—*By J. Adin Mann. Bruce Humphries, Inc., 30 Winchester St., Boston, Mass.* 1949. 294 *pp.* $3.50.

Incidents and anecdotes about life with the Volunteer Fire Department of Devil's Lake, N. D. The book should appeal to the 750,000 volunteer firemen in the United States and Canada. The author's father was chief of the volunteer fire department in his home town, and he himself has been a volunteer fireman practically all his life.

State Pollution Control Report

REPORT OF THE SPECIAL COMMITTEE ON POLLUTION ABATEMENT—*Joint Legislative Committee on Interstate Cooperation, State of New York. Assemblyman Harold C. Ostertag, Chairman, Room 437, State Capitol, Albany. Legislative Document 1949, No. 51.* 108 *pp.*

This report sets forth in detail what has happened to New York's waterways as a result of uncontrolled and increasing pollution, and what must be done to restore and maintain these waterways in a state of safe usefulness. It includes the text of the statute under which a long-range attack on the problem has been launched under authority of the statute-created New York State Water Pollution Control Board, as well as other legislation, enacted at the Special Committee's recommendation, to expedite pollution control measures on a local and interstate as well as a state basis.

Human Relations

HUMAN RELATIONS IN PUBLIC ADMINISTRATION—*By Alfred de Grazia. Public Administration Service, 1313 E. 60th St., Chicago, Ill.* 1949. 52 *pp.* $1.50.

An annotated bibliography which should serve to stimulate interest in human relations in public administration and be useful to administrators and political scientists in their work of solving practical problems of administration, integrating existing studies of public agencies with other fields, and identifying new areas for students of public administration to enter. The bulk of the titles come from the fields of psychology, sociology, anthropology, and political science, and include many works in the applied fields of private and public administration and industrial psychology.

Shopping Centers Analyzed

SHOPPING CENTERS, AN ANALYSIS—*By Seward H. Mott and Max S. Wehrly. Technical Bulletin No. 11. Urban Land Institute, 1737 K Street, NW., Washington 6, D. C. July* 1949. 48 *pp.* $5 *to non-members of the Institute.*

A report on 19 successful shopping centers, including photographs and site layouts. Information is given on site and floor areas and off-street parking spaces, and there is commentary on certain design features. Several centers now in process of construction, or to be started in the near future, are included as an indication of some of the current ideas in this type of development. A list of shopping centers having features of interest is appended for reference purposes.

Town Planning Review

THE TOWN PLANNING REVIEW—*The University Press of Liverpool, Liverpool 3, England. Vol. XX, No. 2. July* 1949. *Single copies,* $1.10.

The second post-war number of the revived *Town Planning Review*, edited by an international board, headed by Gordon Stephenson, Professor of Civic Design at the University of Liverpool, maintains the high standards of previous issues. This number includes articles as follows: "Forty Years of Statutory Town Planning in Britain," by Sir George L. Peopler; the "Growth of a Town," by Francis E. Hyde; "Town Planning," by Gordon Stephenson; the "Planning Schools," by Frederick J. Adams; the "Designer's Dilemma," by Tom Mellor, and the "Sociological Approach to Planning," by A. van der Goot and T. S. Simey.

Census Publications on Governments

CENSUS BUREAU PUBLICATIONS ON GOVERNMENTS—*Bureau of the Census, Department of Commerce, Washington 25, D. C. July* 1949. 2 *pp.*

This leaflet describes briefly each of the 17 reports on governmental finances and employment which the Census Bureau expects to issue in the fiscal year beginning July 1, 1949, and lists recent publications of the Bureau regarding state and local governments.

Citizens' Planning Organizations

CITIZENS' ORGANIZATIONS FOR PLANNING—*Report by Committee of American Planning and Civic Association, 901 Union Trust Bldg., Washington 5, D. C.* 1949. *M.meo.* 54 *pp. Free to members; $1 to others.*

Statements from 44 city and regional planning organizations, five state councils, and two national organizations are presented in this excellent, enlightening report. Information is included on the purposes, functions, area of operations, membership, policy determination, staff, finances, public relations, and achievements of each organization. The report contains a fair cross-section of organizations in communities of various population sizes around the country. It is a definite contribution to the field, revealing, as it does, the many problems still to be overcome.

Blighted-Area Survey

DWELLING CONDITIONS IN THE TWO PRINCIPAL BLIGHTED AREAS, MIAMI, FLORIDA—*City Planning Board, Room 322, Courthouse, Miami.* 1949. 68 *pp.*

Data compiled from a survey of dwelling conditions and environment in the two principal Negro areas in Miami are presented in this report to give a complete picture of housing conditions. Maps of the areas in color are the principal means used to set forth the findings.

The type of survey used is the "Appraisal Method for Measuring the Quality of Housing" developed by the Committee on the Hygiene of Housing of the American Public Health Association which provides a scientific basis for slum clearance.

The survey was made by personnel of the City of Miami and the Dade County Health Department, under the direction of the Bureau of Sanitation of the Health Department.

Community Planning in Chicago's South Side

REPORT TO THE PEOPLE—*South Side Planning Board, 2018 South Calumet Ave., Chicago 16, Ill.* 1949. 58 *pp.* $1.

A readable, lively report which emphasizes the importance of local community planning within a large city. The report is directed to the people of the Central South Side of Chicago, and is designed to encourage their participation in the planning of that community. First, there is an examination of the area as it is, and a case example of a typical South Side family is used to illustrate how they live, work, travel, shop, and play. A suggested new plan for the area is then presented, based on some of the people's expressed needs, and suggestions are made as to how a plan can be brought to reality and how a community organization can be effective within a big city's framework.

An Auto Driving Textbook

SPORTSMANLIKE DRIVING AND TEACHERS' MANUAL—*Published by Traffic Engineering and Safety Dept., American Automobile Association, Washington 6, D. C.* 1948. 455 *pp. Teachers' Manual,* 173 *pp. List price for text,* $3; *school price,* $1.67. *Manual,* $0.53.

This textbook, together with its Teachers' Manual, has been prepared through the collaboration of specialists in traffic engineering and safety and educational consultants. It is designed for use in high-school driver education and training courses. It has been officially adopted and approved by many state and city school systems and is being used widely for both high school and adult classes in driver training throughout the country.

Teaching Community Planning

TEACHING PLANNING IN THE SCHOOLS—*Special Bibliography No. 1. Regional Plan Association, 205 E. 42nd St., New York 17, N. Y. July* 15, 1949. 2 *pp.* 25 *cents.*

A short bibliography of some recent publications on planning education and teaching planning in the schools. A list of available films, slides, and exhibits is also included.

(*Continued on page* 177)

L-M's new Spherolite, Jr.

for better neighborhood lighting at an economical neighborhood price!

The new Spherolite Jr. offers the many advantages of an enclosed luminaire, with shielded light source and good directional characteristics. Its low original and operating costs make it most suitable for residential areas with narrow streets and wide spacings.

Some Important Features

Narrow beam for increased lighting of streets and shielding of residences.

Concentration of light in the main zone, with maximum intensity of eight times the bare lamp value. Main beam at 78° in vertical provides high visibility at wide spacings.

Choice of IES type II or 4-Way light distribution, as shown at left. Refractors easily attached to the specular Alzak reflector with the L-M stainless steel V-Band, which is a positive gasketless seal against bugs, dust, and water. Thus refractors are easily changed in the field, adding flexibility and reducing inventory required for maintenance.

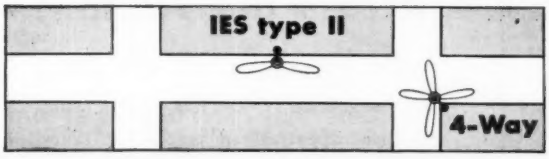
Interchangeability to meet traffic or population growth

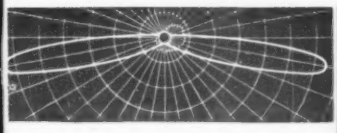
Spherolite Jr. fits the same wide variety of L-M-standardized heads as do L-M's smallest open reflectors and largest enclosed luminaires. Thus changing luminaires usually means simply unlatching one and latching on the replacement—offering a substantial saving in time and material.

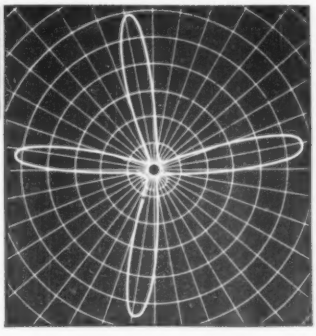
The reflector-refractor assembly illustrated fits any of these: low voltage multiple head; high voltage porcelain head; and, with modified reflector collar, metal series heads up to 5000 volts. The type B head shown is available for either inner or outer wiring, and in either pendent or side mounted style.

Get complete information on Spherolite Jr. and other equipment and L-M Street Lighting Engineering Service ***from the L-M Field Engineer; or write*** **Line Material Co., Milwaukee 1, Wis.**

Two types of light distribution







Choice of two Holophane® refractors which provide either the IES type II pattern shown above, or the 4-Way pattern for intersections at right.

7132

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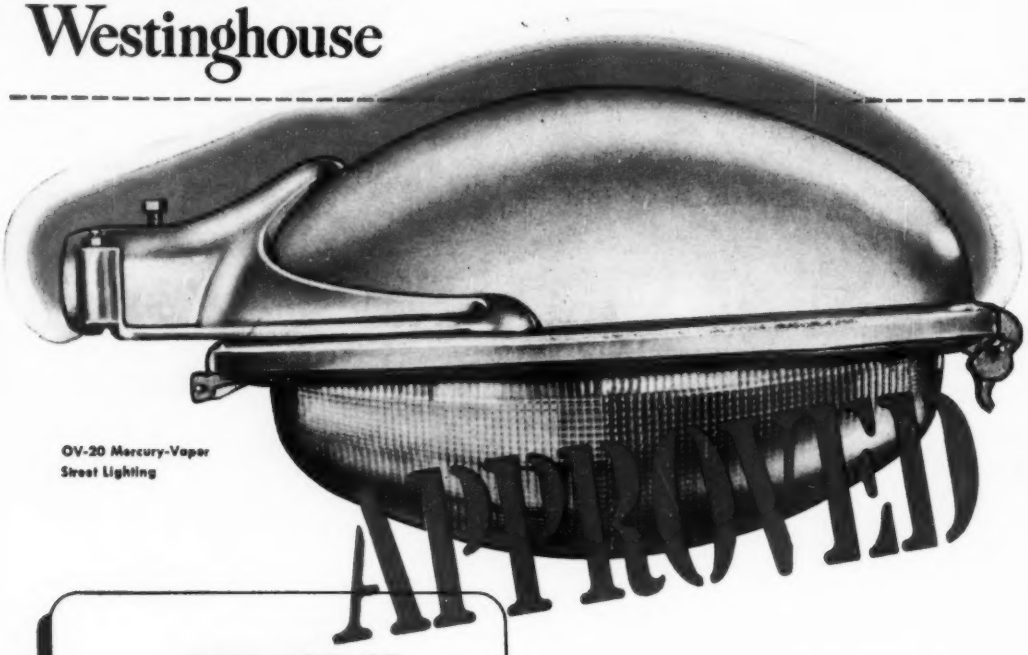

OV-20 Mercury-Vapor Street Lighting

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AND FOR 10 GOOD REASONS:

1. OV-20 was the first luminaire designed specifically for Mercury-Vapor lamps.
2. OV-20 is the first luminaire operating the mercury lamp horizontally—without the use of magnets.
3. OV-20 was the first new postwar street lighting development.
4. OV-20 provides modern design—streamlined appearance.
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7. OV-20 glassware is easily changed in the field—without tools.
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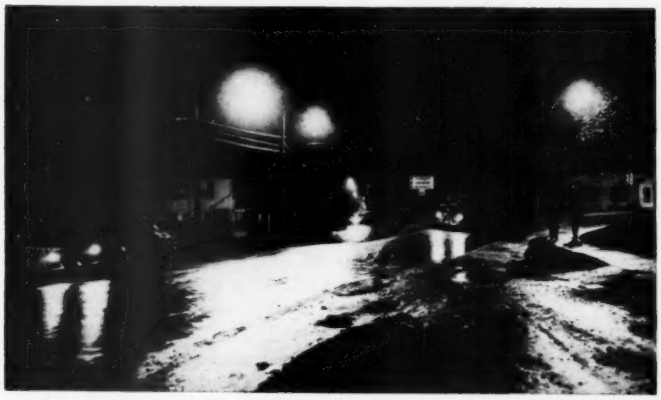
9. Type can be changed in the field by simply changing the glassware.
10. No other mercury unit provides these features.

Thousands installed Across the Nation!

These are but a few of the reasons Westinghouse OV-20 has gained coast-to-coast approval in just three years. Get the complete story in B-3970 from Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Penna. J-04240

Outdoor Lighting



A tricky intersection in New Milford, Conn. The lights turn themselves off and on singly and automatically. Installed at a minimum height of 25 feet, the new luminaires are mounted on pipe brackets which provide overhangs ranging from 4 to 16 feet. Lamp size ranges from 1,000 to 10,000 lumens.

New Milford's Lights On-Off Individually

By JOHN H. ADAMS
First Selectman
Office of Mayor, New Milford, Conn.

THE 191 lights on seven miles of streets in New Milford, Conn., turn on and off individually through photoelectric street-light controls, installed by the Connecticut Light & Power Company. This town of 1600 residents is the first in the world to have a major installation of individually self-controlled street lights.

The "works" of the automatic switch is about the size of a coffee can. Light rays entering a small window cause it to operate. At evening, or even during a thunderstorm, the lessened rays of light act on the photoelectric cells in such a way that the current is turned on. When the light rays entering the apparatus grow stronger, the lamps are turned off.

When natural light falls below or rises above one foot-candle of illumination, the electronic eye detects the change in light and causes a switch to turn the light on or off.

Pointing to the high safety value of this new control system on street lights, the engineers said it turns on street lights during twilight, when the greatest danger of accidents exists.

The fall of evening shadows can be followed by observers as street lights go on, one after another, in a westward direction. The town's system can be lighted in five minutes. In several well-populated locations of New Milford, the control has been set up for a string of lights to work automatically as a group.

The new control will operate lights from an ordinary 120-volt secondary circuit. F. H. Linsley, Engineer for Connecticut Light and Power, stated that installation of the new multiple system resulted in a saving of about $4,000 in investment costs over an alternate expansion of the existing series system to comparable light levels, which had been considered. Another advantage of the new system pointed out by the C. L. & P. engineer is that in event of a failure only one unit instead of a circuit fails.

The electronic device was developed and designed by engineers of the General Electric Company, in cooperation with C. L. & P. engineers. About 100 photoelectric switches are in operation in Waterbury and nearby towns. They were installed at strategic places to give the greatest benefit for pedestrians and motorists. Engineers of the Connecticut Light & Power Company say that more photoelectric controls will be installed, but that it will be years before the automatic switches will be used on entire systems of larger towns.

G-E Outdoor Lighting Headquarters

COMPLETION of a $3,205,000 program for the modernization of the General Electric Company's West Lynn, Mass., facilities for the production of outdoor lighting equipment "establishes Lynn as the outdoor lighting center of the world," according to A. F. Dickerson, manager of the company's Lighting and Rectifier Divisions.

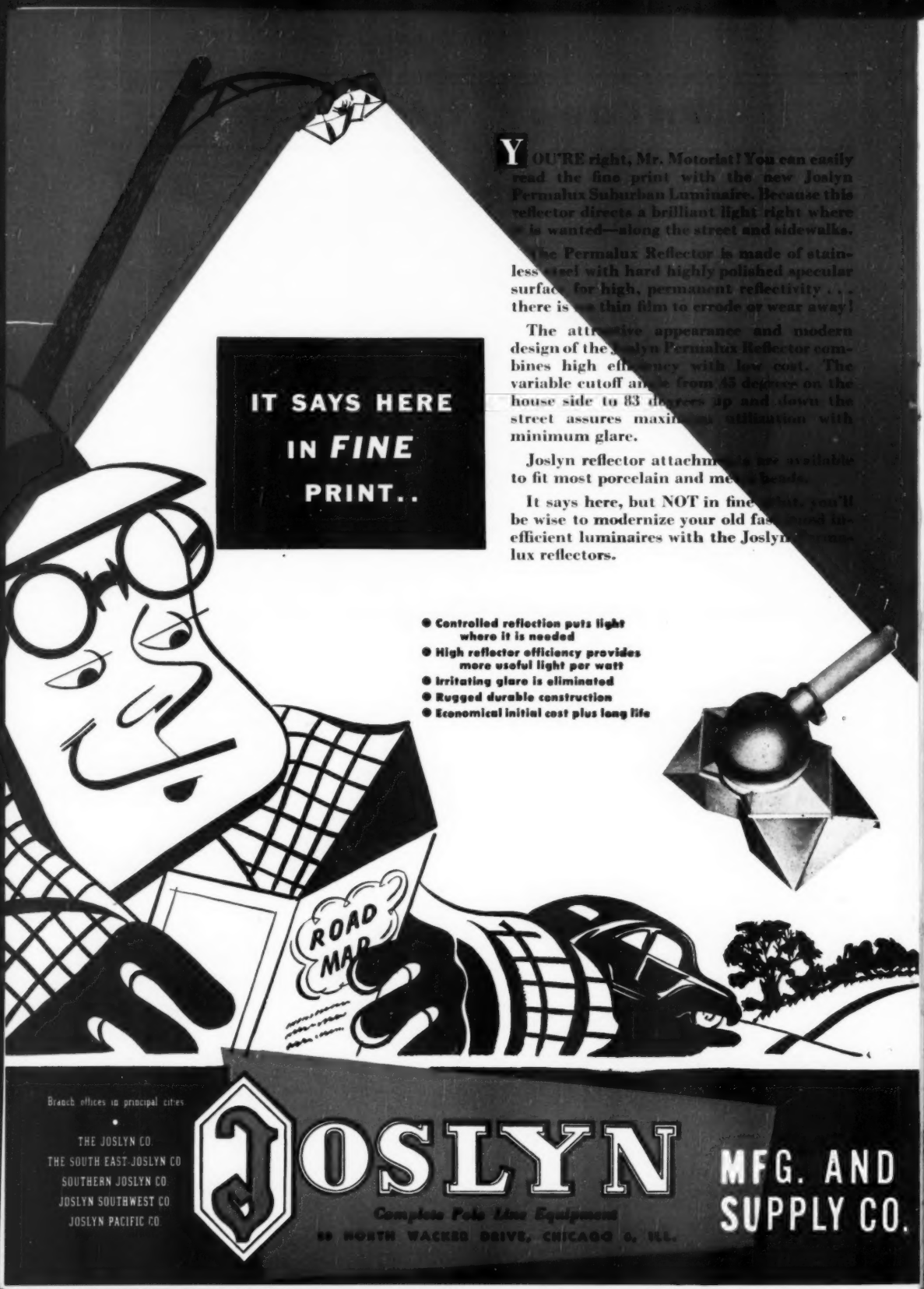
Addressing the annual conference of G-E lighting specialists, Dickerson said the program was planned and carried out "because of our faith in the future of the lighting business and our continuing desire to keep production and employment levels in our plant as high as possible."

"We can see, at this time," he said, "no serious recession in the months immediately ahead, as far as our business is concerned. More than 30,000 miles of heavily traveled streets throughout the country need modern street lighting if accidents and loss of life are to be reduced. We are prepared here at Lynn to meet this tremendous need by supplying safety-lighting equipment."

An outgrowth of the old Lynn arc-lamp manufacturing firm of Thomson-Houston Electric Company, which in 1892 joined with Edison General Electric Company to form General Electric, the plant produces traffic signals and controls, all types of street, flood, and airport lighting fixtures, and allied equipment. Metallic rectifiers, devices used in industry to convert alternating current to direct current, also are manufactured in the plant. The outstanding feature of the new center is the new illuminating laboratory.

S. G. Hibben Elected Vice-President of I. E. S.

SAMUEL G. HIBBEN, director of applied lighting of the Westinghouse Lamp Division, Bloomfield, N. J., has been elected vice-president of the Illuminating Engineering Society. Among lighting "firsts" which can be credited to Mr. Hibben are the development of the first system of transcontinental airplane beacons and the first modern floodlighting installations for public monuments. Twice he has supervised the relighting of the Statue of Liberty.



YOU'RE right, Mr. Motorist! You can easily read the fine print with the new Joslyn Permalux Suburban Luminaire. Because this reflector directs a brilliant light right where it is wanted—along the street and sidewalks.

The Permalux Reflector is made of stainless steel with hard highly polished specular surface for high, permanent reflectivity . . . there is no thin film to errode or wear away!

The attractive appearance and modern design of the Joslyn Permalux Reflector combines high efficiency with low cost. The variable cutoff angle from 45 degrees on the house side to 83 degrees up and down the street assures maximum utilization with minimum glare.

Joslyn reflector attachments are available to fit most porcelain and metal heads.

It says here, but NOT in fine print, you'll be wise to modernize your old fashioned inefficient luminaires with the Joslyn Permalux reflectors.

- Controlled reflection puts light where it is needed
- High reflector efficiency provides more useful light per watt
- Irritating glare is eliminated
- Rugged durable construction
- Economical initial cost plus long life

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Complete Pole Line Equipment

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Has the Fluorescent Lamp a Place In Street and Highway Lighting?

By R. G. SLAUER
Manager
Applications Laboratory
Sylvania Electric Products, Inc.
Salem, Mass.

LEADING authorities have often emphasized that today's street lighting involves luminaires which are "too small at distances which are too great." To a large extent, the reason has been economic. Sources such as incandescent lamps and mercury arcs are more effective and result in lower over-all costs with higher wattage concentrations. Conversely, an assumed limitation of the fluorescent lamp for street lighting has been its inability to concentrate ample light for easiest handling and distribution.

Is there a compromise which would permit better street lighting? It is this challenge which has led to many investigations using fluorescent sources. Naturally, the first approach was one of substitution. Within practical limits, luminaires or installations were designed for direct replacement. One of the earliest was the use of vertical 100-watt lamps on parkway standards.* Far more extensive is the work now under way in England and other countries, accelerated there by higher current costs and milder weather.

Most street-lighting authorities have not felt that the first fluorescent installations were esthetically pleasing. This is not unexpected—the acceptance of a new design or appearance may, like a taste for oysters and olives, have to be acquired over a period of time. Furthermore, to some extent fluorescent lighting is more costly. But this is so slight in terms of over-all costs that it can be met successfully.

In general, there is little attempt to deny the obvious advantages of fluorescent lamps—low brightness, high efficiency, long life, excellent spectral composition. Since these are keystones in any primer of good street lighting, the problem of the fluorescent lamp is not in the source itself but in how it can be applied to utilize its advantages. All present installations seem to provide high levels of light at minimum glare. The latter is quite a natural result—the brightness of the lamp is less than 5 candles per square inch as compared with mercury arcs which have about 1,000, incandescent lamps over 5,000, and carbon arcs approaching 100,000. The high levels are obtained by grouping the requisite number of lamps for any desired output. The necessarily large fixture automatically maintains the basic concept of low brightness and assists in broad, diffuse illumination.

Low Temperature

One problem of the lamp concerns the effect of low temperatures. Practical methods are available which in most parts of the United States solve starting difficulties. This is not necessarily true in regard to output since the fluorescent lamp is temperature-sensitive within normal ranges. If the actual bulb temperature gets as low as 0° F., the light output is negligible because of mercury condensing within the lamp. But zero temperatures are not common in most population centers, the bulb-wall temperature is appreciably higher than the ambient air, and the design of the fixture can protect or compensate for this condition.

The most interesting aspect of the use of fluorescent lamps has been brought about by a characteristic thus far only casually mentioned. Like the roadway it attempts to light, the fluorescent lamp is "linear" in concept. Concentrated or grouped sources inevitably pose problems of distribution and glare, solved only partially by good optical control and high mounting. Why shouldn't sources be at or below eye level, with their light distributed continuously along the road surface?

Installations of incandescent lamps have been tried at low mountings (5 feet or less) but with little success. Lighting patterns had wide extremes, reflected glare was prevalent on wet roads, and an annoyance called the "shutter" effect resulted when a motorist passed a series of light sources in rapid succession. A similar effect is noticed in many tunnel installations, tempered appreciably by reflections of the enclosing walls and by light-source location above car height.

Two low-mounted fluorescent installations deserve study by municipal and other supervisory authorities on street-lighting problems. One is the roadway across the Shasta Dam, Calif. Using tastefully designed railings under which are concealed 8-foot lamps in controlling reflectors, the light is directed toward the center of the road from both sides. To maintain adequate brightness cut-off, the lamps are mounted about 4 feet above the road surface. The eye level of most motorists is 56 inches.

Another fluorescent installation, designed for experimental investigation, has been made on the Kernwood Bridge between Beverly and Salem, Mass. This differs from the Shasta railing in that the lighting is on one side only, the lamps are visible, the units are higher so that they could be placed on an existing railing, and the lamps are continuous rather than interrupted by the vertical standards. But none of these differences conceal the funda-

* See THE AMERICAN CITY, February 1949, for Spartanburg's Fluorescent Street Lighting System.

Fluorescent horizontal bridge lighting as it looks on snow and on bare pavement.

you get COMFORTABLE SEEING* with G-E street lighting

*Comfortable seeing—the light you need, exactly where you need it, economically.

Along Washington Avenue in Endicott, N. Y., 207 new General Electric Form 79D luminaires make for Comfortable Seeing—and the finest mercury lighting installation in the state!

These 16,000-lumen Form 79D's with specially designed Alzak* processed reflector and long globes, provide better light distribution on Washington Avenue. Scientifically determined angle of maximum candlepower results in less glare. Uniformly thick pressed globes with ripple finish give better light diffusion. G.E.'s exclusive spun-sealing keeps interiors free and clean at all times.

Effective distribution, diffusion and sharp cut-off angle are why Comfortable Seeing is a reality on Washington Avenue. Why not include this type of mercury installation in your relighting plans? You can get all the details on the Form 79D from your G-E street lighting specialist at the nearest Apparatus Department Sales Office. Or write directly to *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*

*Manufactured under Aluminum Corporation of America patents.

This is the Form 79D—an economical luminaire for mercury lighting

The Form 79D brings modern mercury lighting within the range of modest budgets. It will accommodate the 16,000-lumen EH-1 mercury lamp as well as any filament lamp up to 10,000 lumens. Ideal for illuminating light-to-heavy-traffic streets and arteries, especially those over 40 feet wide.

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452-94

mental similarity. Both installations are coordinated with the essential elements of construction and both depend more on vertical illumination than silhouette or horizontal.

An installation such as pictured for the Kernwood Bridge would probably cost about $25,000 per mile, one side. Whether or not this is too much depends on the cost of the roadway itself. Obviously it is not for low-intensity installations where the lighting serves merely to break the darkness. It would have to be compared with the one or more foot-candles used on traffic thoroughfares. As part of a bridge costing many millions, or a parkway system at $250,000 to $500,000 per mile, it might be cheap. More important—is it better lighting?

The answer to this—admittedly on a limited scope of appraisal—is that there is an excellent chance that it is. First of all, the highest brightness is 3 candles per square inch as compared with 50 to 500 in some luminaires designed for other sources. Granted that the higher of these values are not the normal ones for thoroughfare traverse, they still exist at all-too-frequent special times. For example, reflections from other cars or wet pavements materially upset the effectiveness of most planned systems using high brightness concentrations. Secondly, the lighting is continuous and therefore uniform. To a real extent it is difficult to get uniformity across a wide road with low-mounted units, but such variation does not usually affect driving visibility. The path of a car is parallel to the light source and therefore it remains in a lane of uniform brightness.

A third and key comment on the lighting quality concerns the matter of basic objectives. In the past, most authorities have weighed silhouette vision versus direct vision, both based on horizontal foot-candles. As an offshoot to this thinking, the whole matter of pavement surfaces of high-reflection qualities has been emphasized despite some objections from daytime and maintenance standpoints. Bright sunlight is apt to produce glare on very light pavement; so far, the most economical way of resurfacing even concrete has been with black-top.

Low-mounted continuous units introduce the concept of vertical illumination, almost to the exclusion of other ideas. A road obstruction or pedestrian stands out by virtue of direct illumination on all vertical surfaces. While contrast with the pavement is of some value, even a perfectly black roadway would not destroy the inherent visibility. We are used to seeing by detail, a partial explanation of some of the difficulties with silhouette lighting. Wet roads adversely effect the results from more conventional lighting; except for possibly improved contrast, there seems to be no change when the dependence is on vertical illumination.

Theoretically, continuous lighting is possible with incandescent lamps. Practically, tubular incandescent lamps of acceptable output per foot are costly, inefficient, and not sturdy. It is for this reason earlier attempts at low mounting always used greatly separated sources, introducing the shutter effect. It is doubtful that even 8-foot dark spaces and 8-foot fluorescent lamps would produce an objectionable effect, permitting a cost saving between 20% and 50% if this was necessary.

A very valid criticism of low-mounted units is the effect of snow collection. On a bridge or dam such as shown, it is easy to push the snow over the side—in fact, wind makes the removal partially automatic. But on the average roadway, the snowplow will build up banks just where it interferes most with the illumination. There is no easy answer to this and it is doubtful whether the lighting suggested—or any other lighting — can be universal in either appeal or effectiveness.

Comments on the Foregoing Article

By the late PRESTON S. MILLAR

PRESTON S. MILLAR, who died June 17, 1949, was one of the little company of authentic street-lighting authorities in the United States. He began his work in electric testing in 1897 and since 1929 was president of Electrical Testing Laboratories, Inc., 2 East End Ave., New York 21. His conscientiousness is reflected in his discussion below of Mr. Slauer's article.

Not having seen the Salem Bridge Roadway installation, I am unable to judge of its qualities except through inference and viewing the photograph that appeared in the May 1949 issue of THE AMERICAN CITY. Judging from the light delivered on the starboard side of the automobile and upon the opposite railing in the picture, it is difficult to understand how, contrary to the statement made, the eyes of the motorist driving in either direction can be free from glare. Such glare and the contrast of pavement brightness from left to right would appear to be undesirable features of this installation. One would wish to see a photograph of this scene when the pavement is wet.

The late Preston S. Millar

The linearity of source that is referred to makes the fluorescent lamp a natural for transverse mounting high over the roadway. One would think that this advantage would be largely lost in side mounting.

On a roadway of this sort it would be expected that inefficient use is made of the light sources mounted along the side when efficiency is measured in terms of the ratio of satisfactory production of pavement brightness to the light produced. Excellence of vertical illumination cannot be expected to compensate for ineffectiveness in rendering the pavement bright in approximately uniform degree.

Nevertheless, the installation should have value. Anyone who installs a lighting system that involves a new way of lighting makes a contribution to the art. Every little system has a secret all its own. As Edison used to say of the type of research of which he was a master, there is value in learning things that won't work. Of such a nature are the side-lighting installations that I have seen. This one may have merits that I have not understood without seeing it.

PRESTON S. MILLAR
May 16, 1949

Mr. Slauer's Acknowledgment

In my article, I specifically comment on the variation in brightness across the road. Unfortunately the photograph depicts the seeing results no better than a picture of moonlight on water does. Whenever specularity is present, visibility depends on the location of the observer.

If there is any point I wished to emphasize, it is that low mounting requires a different appraisal method. One cannot compare a system that is dominantly vertical in results by standards developed with horizontal experience.

I sincerely agree with Mr. Millar in his philosophy that failures are often as instructive as successes. My personal experience would indicate that this method of lighting is not destined to be a failure.

Joe **PRISMO** can take it!

Throw anything at Joe Prismo! Wind, rain, cold, fog! Burn him with summer sun! Grind him beneath tons of metal giants roaring down the highways .

In his own way, Joe Prismo seems to enjoy it. You can see his sparkling smile at night as he reflects light brilliantly.

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Millions of round, smooth, crystal clear, glass spheres reflect light from the widest angle of sight. This makes the **PRISMO LIFE-LINE** reflect light **LONGER** with a steadier uniform glow.

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THE LONGEST LASTING CENTER LINE ON ANY HIGHWAY IS THE PRISMO LIFE-LINE

PRISMO SAFETY CORPORATION HUNTINGDON, PA.

Shreveport's Traffic Runs More Easily

. . . because of mid-block coach-loading platforms, meters and off-street space, and visible traffic signals

By LYNN H. ANDREWS
Traffic Engineer
Shreveport, La.

WHEN Shreveport decided to build mid-block trolley-loading platforms downtown, the city sent inquiries to municipalities over the country in an effort to find model plans. None could be found. It appears from the survey that Shreveport's center-block trolley-coach platforms are the first in the country.

Have they been successful? After a few months' trial the answer seems to be yes.

The concrete platforms, paid for by the Shreveport Railways Company, and constructed in accordance with a plan developed by the City Planning Commission and the Department of Public Works, are proving their worth as a safety measure for those boarding trolley coaches on Texas Street, and have relieved pedestrian congestion on the sidewalks at street intersections. Each end of a platform is equipped with reflector units designed by the Miro-Flex Company, Inc., of Wichita, Kans. Reflectorization is composed of thirty-three $1\frac{5}{8}$-inch plastic lenses mounted in a U-type metal housing designed to fit over the $2\frac{1}{2}$-inch galvanized pipe. This housing is attached to the metal pipe with self-threading screws. The reflectors have been found very satisfactory as a protective measure during the early morning hours when no cars are parked along the street. In addition to the reflectors a red light mounted on the upright post is connected into the street-light circuit.

The platforms were built $6\frac{1}{2}$ feet out from the sidewalk in order to save approximately 90 linear feet of curb for parking that would have been necessary for trolleys if they were to pull into the original curb line and have space to pull out into the street again. Of the ten platforms erected, eight are only 40 feet in length and are suitable for one trolley-loading space, and two are 80 feet, suitable for two trolleys. The platforms also have opened street intersections for the free movement of vehicular traffic. Previous trolley-coach loading took place in the center of 100-foot-wide Texas Street at the near side of the intersection, and the usefulness of the two center lanes was impaired seriously due to the fact that, in many instances, trolleys were blocking the center lanes through green lights while loading and unloading passengers. The company reports that delays due to traffic congestion have been cut in half.

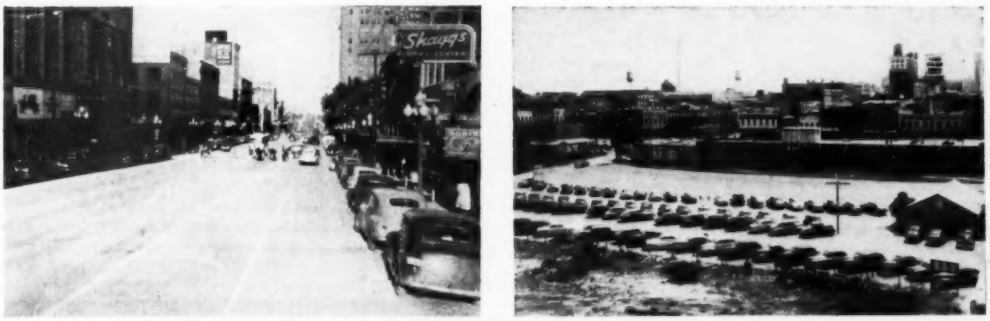
Part of a plan that is in the process of development for relief of traffic congestion and the improvement of vehicular travel over the streets of the city, the mid-block loading platforms are attracting considerable attention throughout the country and requests have been received for detailed drawings and photographs.

The Shreveport plan includes details to improve the parking conditions within the city, re-routing of trolleys, new eye-level signal lights and channelization of traffic.

Meters Build Parking Lots

Revamping of Texas Street by changing from a 45-degree parking angle to parallel was the first project completed. At the same time parking meters were installed in the downtown district. Installation of the Park-O-Meters immediately increased the parking turnover at the curb. Before meters were installed, 2,500 cars per day parked in the downtown business district, a large percentage all day.

The meters achieved a turnover of slightly in excess of 9,000 cars per day at the curb, representing a substantial gain in customer parking. Second, and long-range, benefit of parking meters is the dedication of these funds by the City Council to the improvement of traffic and parking conditions. By the first of June, $14,700 from parking-meter fees had been expended on the construction of free municipal parking



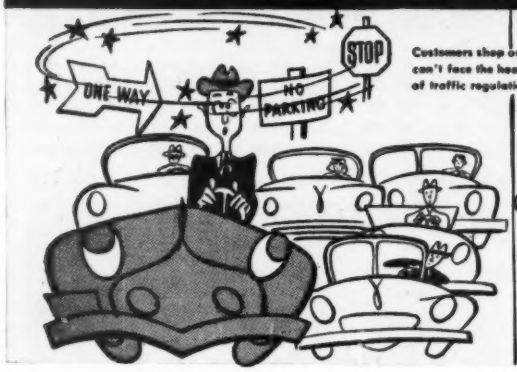
Left: Orderly parallel parking with Park-O-Meters on 100-foot Texas Street, Shreveport. Right: Municipal parking lots Nos. 1 and 3, two blocks from the center of Shreveport's banking district. There are now four parking lots, all paid for by Park-O-Meter revenues. Curb meters now handle over 9,000 cars a day as against 2,500 cars before.

SHAKER HEIGHTS RAPID TRANSIT ELIMINATES THE NEED FOR *Seven* FOUR-LANE HIGHWAYS

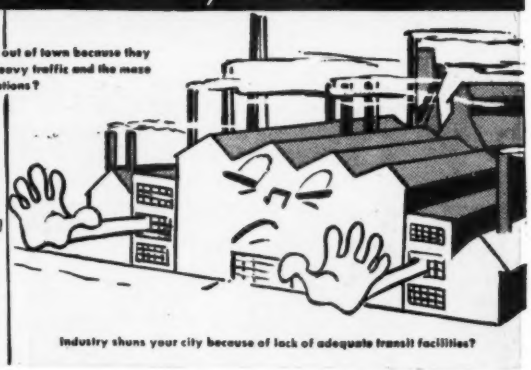
These sleek all-electric high-speed PCC cars carry 20,000 riders a day between Shaker Heights and Cleveland. This two-track line is capable of doing the job of seven four-lane highways. This system is so well planned that Shaker Heights was developed around the transit system! In 1948, the Shaker Heights Rapid Transit System, managed by Mr. Paul K. Jones, added 25 of these electric streamliners to the system. Mr. Jones says, "These new cars enable us to give faster service than ever before . . . Furthermore, these cars provide clean, comfortable rides. Our service is helping materially in the aleviation of the parking problem in downtown Cleveland."

Here is an example of how effective mass transportation meets the needs of a modern city.

ARE THESE CONDITIONS TRUE IN *Your* CITY?



Customers shop out of town because they can't face the heavy traffic and the maze of traffic regulations?



Industry shuns your city because of lack of adequate transit facilities?

If your city is suffering from blight conditions and traffic congestion, effective mass transportation may be the answer. The quiet and odorless comfort of electric vehicles—trolley coaches, PCC cars and rapid transit cars—attract riders who leave cars at home. For the trunk lines electrics cost the least to operate. Write us. Let us help with your planning problems. Apparatus Department, General Electric Company, Schenectady, N. Y.

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lots. Lot No. 1 has spaces for 100 automobiles, and within 30 days of its completion it had capacity parking by 8 a.m. each week day.

Municipal parking lot No. 2, with a capacity of 70 vehicular spaces, was constructed at the opposite end of the downtown district. This lot, adjacent to the Municipal Auditorium, is hard-surfaced and spaces were painted at no charge and has been particularly beneficial at night for patrons of the auditorium.

Lot No. 3, next to Lot No. 1 on the river front, has facilities for 128 automobiles and is fully utilized.

A fourth free municipal parking lot was constructed adjacent to an old neighborhood shopping center, at Lake Shore Drive and Portland Avenue, that needed additional parking facilities. This was done to relieve traffic congestion in the immediate vicinity and to maintain property values in that commercial center. The lot was constructed on property owned by the city and formerly used as a fire-station location.

Parking meters were placed in operation July 27, 1948, and the four municipal lots were constructed one at a time as funds became available. It is the plan of the city to construct additional lots at a distance no greater than three blocks from the business district as funds become available from parking-meter revenue.

Lots 1 and 3, on city-owned property, will be expanded to provide approximately 800 off-street parking spaces. A bundle check room will be established to enable stores through their delivery services to leave purchases for out-of-town customers to claim. Purchases by out-of-town customers represent more than 20% of all retail sales in Shreveport, and the value of free parking and convenient checking is apparent. As an added service a small playground with competent supervisory personnel and the necessary rest-room facilities are being planned for this major off-street parking area.

Re-routing of trolley lines through the downtown business district was another important step in the Shreveport plan. The re-routing plan, formulated by the City Planning Commission in cooperation with the Department of Public Safety, was approved by the City Council and the trolley company a year ago. Placed in operation in May, it has relieved downtown traffic congestion and reduced delay to the mass-transportation system. In general the re-routing removed trolleys from the narrow streets and eliminated left turns by trolley in the congested districts.

Mid-block loading platforms, paid for by Shreveport Railways Company, are safer for trolley-coach passengers and have Miro-Flex units at each end.

As part of the Greater Shreveport program, provided for in a bond issue voted by property owners in 1947, a new system of traffic signals has been installed under the direction of the Department of Public Safety. The use of corner-mounted traffic signals is an important visual aid to motorists, but the greatest benefits are obtained because the new system can be timed to provide a maximum flow of traffic inbound during the morning rush period, permitting an automatic change to accommodate a maximum flow of traffic outbound during the late afternoon rush hour. The lights are designed to provide for normal operation between morning and afternoon peak periods.

All of these functions are set up on a master control panel and automatically change at the proper time of day. Another feature is the provision for fire lanes. By flipping a switch in the master control room in the central fire station, the lights along streets to be utilized by fire trucks in a particular section of the city automatically turn red along and against streets entering the route. Lights on other streets in the downtown area continue to function in the normal manner. The traffic signal system was bought and installed for a total price of $162,695.69.

Channelization of traffic through the use of paint striping and traffic buttons, which has been under way for some time under the Department of Public Safety, is being speeded up as rapidly as possible. Studies of traffic movement are being made before this work is done. The entire work of improving traffic and parking conditions as outlined is being coordinated with the spending of $2,500,000 bond-issue funds voted in May 1947 for new arteries to and from the downtown business district.

What Lowers Traffic-Paint Durability?

By R. S. HANK and F. E. BENNETT
Texas Highway Department

IN THE preparation and maintenance of highway markings, signs, and stripes, the Texas Highway Department maintains a well-equipped paint laboratory as well as a traffic-service division. The laboratory, of course, does the fundamental formulation work, as well as being responsible for quality. The traffic-service-division functions are traffic-marking design, education, and coordination with other agencies.

The standard code calls for a white stripe down the center of the highway and the use of yellow lines on the inside of the center stripe to denote no-passing areas. In Texas, the first section of a barrier line means there is less than a thousand feet of unobstructed vision ahead. The need of high-visibility identification of these areas is readily apparent and desirable.

Texas has previously employed a unique highway-marking stripe that is an original development of its highway department. It consists of a high-penetration-point asphalt or cutback, sprayed in a 4- to 6-inch stripe on the road. Immediately following the asphalt spray, graded trap rock or limestone is rolled on the fluid asphalt. The rock, approximately ¼-inch in diameter, is firmly anchored by the asphalt. This resulting surface, which is extremely rough, projects ¼ inch from the roadbed, giving a raised stripe.

The trap rock is an extremely dense igneous rock that gives a black line which is employed on light contrasting roadbeds. The limestone stripe is used

OVER 15 YEARS OF KNOW-HOW • OVER 600 CITIES KNOW WE KNOW HOW

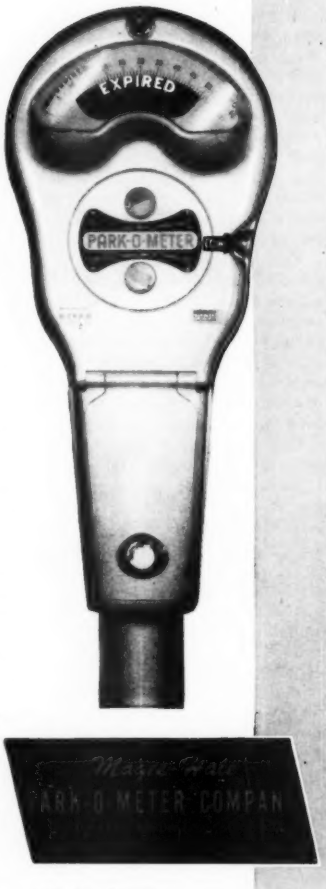
being first *and being followed* is the identification of *leadership*

Some meters honor us through imitation. They shout of "improvements" and "new designs" which merely simulate features that have been provided by Park-O-Meter for years.

for instance, do you want . . .

❶ **DEPENDABLE, AUTOMATIC OPERATION?** Park-O-Meter is engineered from the ground up for automatic operation.
❷ **LARGE, CLEAR SIGNAL?** In Park-O-Meter the signal flag is easily visible *from either side* for 50 yards.
❸ **MECHANICAL SIMPLICITY?** The whole Park-O-Meter mechanism is an assembly of 4 main parts, each quickly removable and replaceable on the spot.
❹ **SELECTIVE COIN COMBINATION?** Park-O-Meter is instantly changeable to handle all single or multiple coin combinations up to 10 pennies, 2 nickels.
❺ **CUMULATIVE TIME OR WIPE-OFF RESET?** Park-O-Meter is instantly convertible from either method to the other.
❻ **COIN-GATE CLOSURE?** The coin-gate is self-sealed against snow, ice or freezing rain. The coin-slot refuses to accept a motorist's coin if the mechanism is jammed or out of order.
❼ **WEATHER-PROOF DEPENDABILITY?** Entire Park-O-Meter mechanism is protected against dust and moisture and the precision-built timer is a sealed unit unaffected by temperature.
❽ **TROUBLE SIGNAL?** A red signal calls attention of the service man when a meter is jammed or "slugged."
❾ **TAMPER AND THEFT-PROOF?** The Park-O-Meter coin compartment cannot be opened except with proper key or by destruction of meter-head. Time-set mechanism is tamper-proof except with coin-size slugs.
❿ **HIGHER NET REVENUE?** Comparative performance records in cities with split installations which include Park-O-Meters show that Park-O-Meters consistently return greater net revenue after maintenance and service costs are paid.

WHAT OTHER FEATURES DO YOU WANT? In addition to all the above, Park-O-Meter provides the following: Die-cast case . . . Red arrow coin-slot . . . Neoprene gasket seal all around . . . Slug detector windows . . . Work-table mechanism door . . . Automatic coin collection . . . Separate locks for coin and mechanism compartments . . . Non-removable head mounting . . . Streamlined housings eliminate snow shelves and prevent confusing shadows.



Ask for literature completely describing Park-O-Meter. Find out for yourself why it is the choice of large and small cities all over the nation . . . why Park-O-Meter is the leader among them all.

YOU WILL FIND ALL THESE FEATURES ONLY IN PARK-O-METER

on dark roadbeds to give the necessary contrast. The raised stripes are of a semi-permanent nature and have been used extensively. The main advantages are relatively low cost of application and good durability, while the disadvantages are occasional low levels of contrast, poor night visibility, and lack of conformation to the standard color-marking code.

New Paint

Texas controls quality, not by performance specifications alone, but by regulating and controlling the raw materials that make up the end product. This method insures quality where it belongs—in the raw materials that make up the proven end product.

Consequently, when the striping program was first initiated, the first step was to give to the paint laboratory at Austin the problem of preparing and developing the paint formulations. The resulting specifications call for Pliolite S-5, a paint resin manufactured by The Goodyear Tire & Rubber Company. In view of Goodyear's interest in this new use of Pliolite S-5, a cooperative field-study program was outlined and carried out. The purpose was to correlate weather, cleanliness of surface, rate of application, and type of road surface with the durability of the specification paints. What are the field factors that affect the longevity of traffic paint in service? The formulation employed and observed in the field is called YP-3 and some of the design aspects and pertinent features are as follows:

1. *Vehicle*: The vehicle is based on materials new to the traffic-paint field. Factors influencing the selection were availability, concrete alkali resistance, abrasion resistance, and non-oxidizing rapid-drying characteristics.

2. *Pigmentation:* The selection of diatomaceous silica was made in order to form transfer channels for moisture being drawn out of the roadbed by the sun. The grind, 2-to-3 pebbler or roller fineness, is such that the silica agglomerates are not broken down, allowing the moisture migration to take place.

3. *Suspension Agents:* Di-acid aluminum stearate, with complete absence of any hard settling, was found to be a very good suspension agent for this particular formulation.

4. *Processing Characteristics:* An important consideration, both costwise and from a producer's standpoint, is the ease of processing. Soya lecithin was found to give additional rapid and easy pigment-wetting and dispersion without long grinding.

5. *Solvent Combination* was designed to attack asphalt and secure good adhesion and anchorage through a solution bond. The other design feature was to obtain a balanced drying rate.

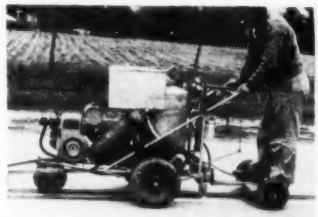
At the time of striping the pertinent data were logged and photographs taken. After six to ten months, the stripe was again inspected and pictures taken.

Field Factors

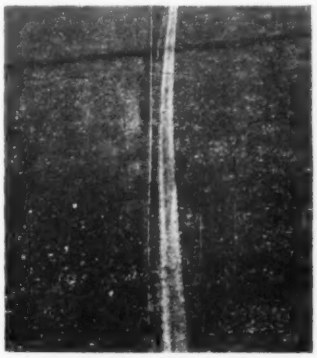
Surface cleaning and rate of application are the two most important factors found by the survey. With some other materials that were tested, the influence of weather appeared to be of considerable importance.

Most selections of traffic paint are made after durability tests under ideally controlled conditions, i.e., ideal traffic-stripe conditions, clean surfaces, maximum dry time, proper weather conditions and carefully controlled application rates. We found little agreement between accelerated tests under ideal conditions and the durability of the stripe applied under field conditions, crews, and methods.

A water-flush truck is used to clean the road prior to painting the stripe.



Kelly-Cresswell paint-spray machine, used to apply Pliolite S-5 paint.



Stripe of paint based on Pliolite S-5 after nine months of heavy traffic.

An ideal situation exists when the surface to be painted is absolutely devoid of dirt or films that will have an influence on the adhesion of the stripe. A traffic paint is designed to adhere to the various roadbeds and is not normally expected to be a binder for dirt deposits. But clean surfaces are seldom encountered in the field, and this is the weakness in traffic-stripe operation. In some areas of Texas rotary power brooming and high-pressure water flushing are used for preparing the surface. The rotary power brooms are conventional street-cleaning units. In the flushing method illustrated, a high-pressure stream of water flushes the surface, dislodging loose scale and silt.

Relation of Application Rate And Adhesion

The degree of adhesion obtained under moderate or normal dirt conditions is very definitely related to the amount of paint applied. The laboratory recommends application rates from 18 to 24 gallons per mile of 4-inch stripe. In the field, stripe application rates ranged from 12 gallons to 45 gallons. In explanation, 12-gallon rates were obtained when the spray-machine settings were not right, while the 45-gallon rate was a deliberate two-coat operation in order to determine the effect in this range. It was found that 12 gallons per mile gave only one-third the durability of the recommended rate. High application rates tend to offset improper cleaning.

Application temperatures ranged from 36° to 100° F., with good service at each extreme. Annual rainfall did not appear to have any effect on any type of surface. Good service, under high vehicle rates, was obtained in areas ranging from 10 inches annual rainfall to 50 inches. In the western areas that have predominantly sunny days, it was possible to check the effect of color retention, which was found to be extremely good.

A Garage Is Not a Stable

IT IS a commercial building. New York City is treating the modern parking garage as though it were a stable in the horse-and-buggy days. It is time to recognize that housing automobiles is a very different proposition from stabling horses.

HENRY DAVIS NADIG
Public Relations Director
Regional Plan Association, Inc.
New York, N. Y.

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New U. S. Government Manual

UNITED STATES GOVERNMENT ORGANIZATION MANUAL, 1949 Edition—*Division of the Federal Register, the National Archives Establishment, General Services Administration, Washington, D. C. Order from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.* 725 *pp.* $1.

The manual covers the creation, organization, functions, and activities of all branches of the government. The material has been approved by the departments and agencies themselves and includes the names and titles of the administrative officials. Field offices and addresses are listed for many of the departments and agencies.

Statements on the United Nations, the International Bank for Reconstruction and Development, the International Monetary Fund, and other international organizations also appear in this 1949 edition of the manual.

New Magazine in Government Field

GOVERNMENTAL NEWS, A NATIONAL PUBLICATION FOR PUBLIC OFFICIALS—*George F. Breitbach and Sons, Publishers, 717 N. 11th St., Milwaukee, Wis. Vol. 1, Issue 1, July* 1949. 65 *pp.* $2 *per year.*

Dedicated to democratic government, the first issue of this publication contains articles on such subjects as county government, intergovernmental relations, transportation, highway safety, housing, public administration, purchasing, crime prevention, service clubs, assessing problems, and planning. The magazine intends to present to public officials and the general public the story of how government operates, its problems and objectives, and what it means to Americans to have a share of responsibility in their government. Its circulation is expected to reach officials of states, cities, villages, counties, townships, and school boards.

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TENNESSEE VALLEY—Navigation in the Development of the Tennessee Valley. Tennessee Valley Authority, Division of Regional Studies, Knoxville. May 1949. Graphs. Charts. Maps. 14 pp.

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——Selected Bibliography on Annexation. American Society of Planning Officials. 1313 East 60th St., Chicago, Ill. Mimeo. 3 pp. 50 cents.

——Directory of State Planning and Development Agencies. Association of State Planning and Development Agencies, 1313 East 60th St., Chicago, Ill. Mimeo. 45 pp.

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AUGUSTA, GA.—Year Book of the City Council, 1948. Illus. Tables. 144 pp.

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LEWISTON, MAINE—Annual Report, 1949. Edited by Lucien Lebel, City Clerk. Illus. Tables. 57 pp.

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WINNETKA, ILL.—Annual Report for Fiscal Year ending March 31, 1949. Finance Department, The Village of Winnetka. Mimeo. 23 pp.

HONOLULU, HAWAII—Annual Report, 1948. Department of Public Works, City and County of Honolulu. Illus. Graphs. Mimeo. 107 pp.

Zoning and Planning

(*Continued from page* 151)

machine tools to make machinery for war contracts, first in his residence and subsequently in a separate building. A punch press was also installed in the garage in 1945, but was soon removed because of the neighbors' objection to the noise. After the war, although a permit for such use was sought and withheld, manufacturing operations were expanded and transferred successively into two new buildings. The County authorities brought an action to enjoin manufacturing on the premises.

Rapid Changes in County Are Noted

After a long and highly abstract introductory discussion on property rights and the police power, the Illinois Court upheld the County's decision to restrict the area in question to farming and residence. In the opinion the Court noted twice that the County zoning ordinance was based on a thorough survey of conditions by competent and disinterested specialists. The small areas allocated to industry were described as sufficient. The restrictions in the ordinance were, however, approved only because of the rapidly changing conditions in the County, resulting from the expansion of the adjacent Chicago metropolitan area.

"We are judicially aware that Du Page County is just west of Cook County and the City of Chicago, and there has been for some years past a constantly accelerated migration west, from the two places, of people seeking less congested and more comfortable living conditions; that industry is to a degree and for various reasons decentralizing, and business generally is seeking escape from the troublesome burdens which seem to be an end product of concentrations of people. All that has operated, and is operating, to bring about a change in the basic characteristics of Du Page County. County areas, especially those close to metropolitan areas, are feeling the impact of changing conditions of life, just as Mr. Justice Sutherland has observed [in the *Euclid* case] that urban communities experienced a change in their ways of life. Under such circumstances, the imposition of new or additional restrictions on the way of life in country areas is inevitable.

". . . If the property were located in an area which was static, as to conditions changing it from a rural to a suburban manner of life, the case for the restriction would be weak indeed, and the case against it stronger. The area is not static. In fact it is kinetic and changing. . . ."

Selma, Alabama

WHO could know better about the qualities of parking meters than the people directly responsible for installation, operation and servicing?

Here, in a typical town, they all agree that the carefully considered choice of Dual Automatics was a wise move. Says the mayor, "Our parking meters have operated very successfully and we are entirely pleased with them."

That's because Duals are sturdy, completely packaged, precision-built instruments, weather-proof, tamper-proof and dependable. They require little attention. Low maintenance *stays* low! Duals always win the vote of motorists, too . . . no levers to fuss with . . . no gadgets to snag clothing . . . easy-to-read timing . . . and positive choice-of-coin performance.

If you want to know how your city can have distinct advantages in metered parking, send for a Dual bulletin describing Dual's new and unique features.

THE DUAL PARKING METER COMPANY
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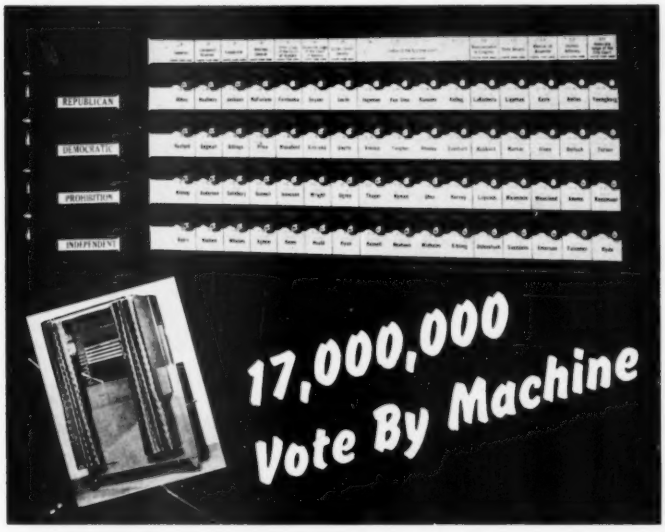
YOUR BEST ANSWER TO EVERY PARKING PROBLEM . . .

News and Illustrations

Items of interest to city, town and county officials and others concerned with the economical construction and efficient operation of public improvement undertakings



The only baffling feature about the voting machine is why it is not universally used. The secret ballot is the essence of self-government and the voting machine is the essence of secret balloting. It is encouraging that as many as 17,000,000 voters cast their ballot by machine in the last election.

The first machine actually used in an election (in Lockport, N. Y., in 1892) was the invention of Jacob H. Myers. It was a massive device, too cumbersome for widespread use. Four years later, the United States Voting Machine Company of Jamestown marketed an improved device which soon secured widespread use throughout New York State. This organization was the parent of Automatic Voting Machine Corporation. A new 24-page booklet tells the story of "The Voting Machine and American Democracy."

It is improbable that any of the seventeen million citizens who registered their ballot on the Automatic Voting Machine at the last Presidential election gave much thought to the wide range of election requirements the machine must meet.

In every state it is necessary to accommodate the maximum possible number of offices and candidates permitted on the ballot, 30, 40, 50 and 60 office columns. All machines accommodate nine political parties.

What Machines Must Do

A voting machine must provide all the facilities for voting found on paper ballots. In addition, it must not only prevent the spoiling or fraudulent counting of ballots, but must also assure absolute secrecy.

In Illinois, a voter may give three votes to a single candidate or 1½ votes to each of two candidates for "Member of the General Assembly." Every Illinois machine has a special "cumulative device" to interlock the machine and permit this form of voting, yet prevent spoiled ballots. The many facilities provided by the Automatic Voting Machine to comply with state requirements and to safeguard the voter's ballot, require complex mechanisms composed of 23,000 parts. Each voting machine requires from three to six hundred separate, complete counting units. They are the heart of the machine for it is on them that the votes for candidates and on questions are recorded. When the machine is fully assembled, it is test operated at high speed to give it the equivalent of ordinary use in two elections.

With the sale and delivery of the voting machine the manufacturer's real responsibility to election officials begins. Before the first two elections at which the machines are to be used, factory technicians instruct the custodians in the care and preparation of the machines, school the precinct officials in their election-day duties, arrange for the instruction of the voters, assist the printer in the preparation of the ballot labels and return sheets, and are in attendance on Election Day.

With voting machines the count is accurate, there are no spoiled ballot, election expenses are usually reduced. An attractively illustrated booklet entitled "The Voting Machine and American Democracy" is availabled without cost by writing to The Automatic Voting Machine Corporation, Jamestown, N. Y.

How Jeeps Serve Our Cities

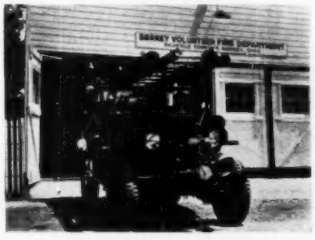
Today, ten years after the Jeep was first conceived as an all-purpose military vehicle, numerous municipal departments are making a wide variety of uses of the Jeep's 4-wheel-drive and power take-off. A number of these are pictured here.

As is often the case with military equipment, one of the first adaptations to civic use of the Jeep was in police work. In Toledo, Ohio, the police force is using the vehicles for traffic patrol, servicing parking meters, and removing illegally parked cars to the city auto pound.

New York City has a Jeep highway patrol whose chief job is to keep traffic unsnarled on the bridges and tunnels which link congested Manhattan with the rest of the country. When a car breaks down on any of these vulnerable arteries, a quick phone call summons a rescue Jeep to tow the disabled vehicle out of the traffic flow.

Jeep Posse Rides the Range

Through the organization of a Jeep posse, citizens of Bountiful, Utah, have found a new twist to a traditionally Western method of fulfilling civic obligations. Now boasting more than twenty Jeeps, the Bountiful Posse has gained international recognition for its fire-fighting and rescue work. The idea has started to take hold in other communities. Salt Lake City was the first



A Berkey, Ohio, fire engine.

to take its cue from Bountiful, and now, spurred by inquiries from other cities in this country and abroad, Bountiful's Jeepmen are in the process of organizing an international association of Jeep Posses.

(*Continued on page 181*)

If your city is not metered...

or if your present meters are obsolete...

or if your traffic flow needs greater guidance...

Ask to see these valuable CONTROL DEVICES

MILLER
The parking meter that is first choice all over America.
AUTOMATON
The amazing new parking meter that actually winds itself.
SCHOOL
ZONE
Duncan Safety FLASHERS
The all-electric traffic sign that commands greater attention and obedience

Here are traffic control devices that set the pace others follow. Write today for illustrated catalog and details on how easily they can be purchased.

835 No. Wood Street, Chicago 22, Illinois

When writing Duncan Parking Meter Corp., please mention THE AMERICAN CITY

(*Continued from page 179*)

A fire-fighting adaptation of the Jeep has also proved popular with many municipalities. The Jeep fire protection unit, made by the Howe Fire Apparatus Co., Anderson, Ind., is equipped with a front-mounted centrifugal pump which can pump 375 gallons a minute at 120 pounds pressure. Complete with hose, ladder, pike pole, and other fire-fighting tools, the Jeep is used by some small communities as the principal fire-fighting apparatus, and as a valuable auxiliary unit in larger cities.

Toledo police Jeep keeping motorists in line.

Last year Bogota, Colombia, acquired 30 of the units. For all its compactness and maneuverability in close quarters, even the Jeep fire truck had to be modified for the narrow streets

A swinging crane of the Los Angeles Department of Water and Power.

of Bogota. To avoid possible damage in tight turns, the pump mounting was moved to the rear of the vehicle. The large well-equipped fire department of Toronto, Ontario, has found the Jeep fire truck valuable as auxiliary equipment.

General Municipal Purposes

On the more prosaic side, other municipal departments are employing Jeeps for such diversified chores as plowing snow, cutting grass, spreading insecticides, painting traffic lines, and maintaining power and water lines.

In Charlotte, N. C., traffic lines are quickly applied by a painter sitting in the rear of a Jeep, feeding a brush rigged directly underneath the vehicle.

Many airports throughout the country use the Jeep as a stand-by fire-protection unit and a "lead pony" for landing aircraft. At the Toledo, Ohio, Municipal Airport, Jeeps with various agricultural implements are being used to bring unused portions of the airfield under cultivation. The intention is to build up the land through farming so that it can eventually be suitable for airfield use.

In Los Angeles, an ingenious engineer of the Department of Water and Power has devised a novel Jeep-powered swinging crane for quick emergency service. It will handle a 1,000-pound load. About 200 feet of cable is carried on the drum-type winch operated by regular Jeep front power take-off. When moving from job to job, the upper portion of the equipment is secured to the back of the Jeep by a lock hook and taut cable.

Towing a mower at the San Mateo Municipal Golf Club south of San Francisco.

Attention!

City Officials

Refuse dumping areas *DO NOT* need to be a health menace.

CLOROBEN

Supplies the Answer

NO INSECT BREEDING
RAT BREEDING
FOUL SMELLS

Write us for details on how to use Cloroben to give your refuse dumping area a good health record.

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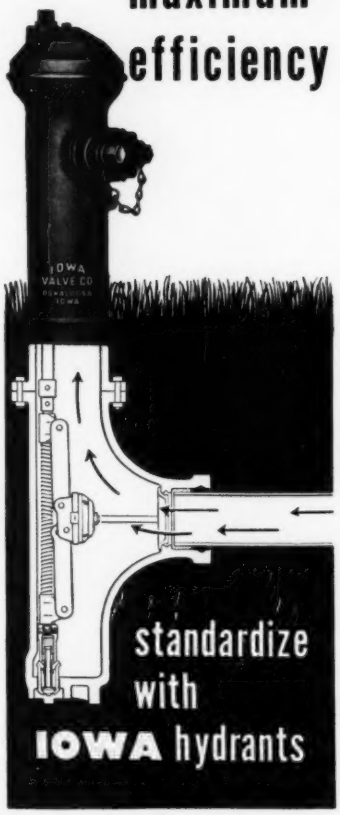
The Pioneers of Up Sewer Treatment

for maximum efficiency



standardize with IOWA hydrants

Two piece operating nut with special adjustment screw solves the problems of expansion and contraction . . . makes Iowa hydrants easy to operate at all times.

Positive operating mechanical drain valve can be removed along with all other working parts through top of hydrant without special tools.

Fixed position of valve arms makes leaking impossible should standpipe be broken.

Unrestricted water flow gives full pressure at extreme low loss of head.

Built to conform to the latest A.W.W.A. specifications.

IOWA
VALVE COMPANY
201-299 N. Talman Avenue • Chicago 80, Illinois

A subsidiary of James B. Clow & Sons

MAKES THE STARS SHINE BRIGHTER

LOOK FOR THIS NAME

It identifies aluminum reflectors made extra bright that won't chip, spall, or peel. Clean them regularly and they will last indefinitely. Leading manufacturers make Alzak reflectors in standard shapes and sizes, in specular and diffuse finish.

Television is a light-hungry business. It demands foot-candles by the thousand to sharpen the image, lend contour, increase depth of field. Television lighting is a job that Alzak reflectors handle well. They reflect and control light better than all other commercial reflectors.

What's that to you? Well, figure the price of wire, fixtures, current . . . everything for a lighting system. Poor reflectors can waste a lot of that money. Alzak reflectors give high lighting efficiency. ALUMINUM COMPANY OF AMERICA, 1859J Gulf Building, Pittsburgh 19, Pennsylvania.

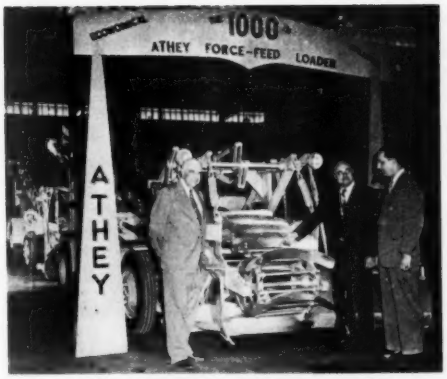
ALZAK REFLECTORS

OF ALCOA ALUMINUM

ALCOA ALUMINUM

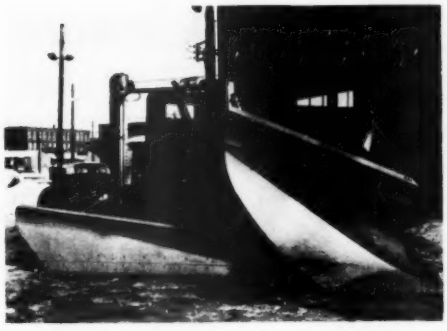
made by Leading Lighting manufacturers

1,000th Force-Feed Loader Off the Line



Designed as a companion tool for the Caterpillar diesel motor grader, this 1,000th Force-Feed Loader rolls off the assembly line headed for Polk County, Iowa, to work at jobs ranging from ditch cleaning to snow-loading at rates to five cubic yards per minute. With an Athey portable breaker, also manufactured by the Athey Products Corp., 5631 West 65th St., Chicago 38, Ill., the unit forms a "pick-up, crush, and return to subgrade" plant for reprocessing black-top roads. Left to right are Athey president B. F. Lease, vice president and plant manager W. L. Kubik, and assistant domestic sales manager A. T. Marchuk.

Big Equipment for Big Show



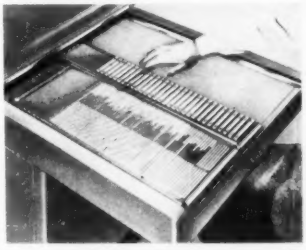
One of the four pieces of snow-fighting equipment completed by the Walsh Holyoke Boiler Works Div., Continental Copper and Steel Industries, Inc., Holyoke, Mass., which are believed to be the largest in America. Built on the largest constructed four-wheel-drive Sterling truck, the Walsh Sargent plow units can be raised and lowered hydraulically at the rate of five feet in six seconds.

Push-Button Record-Keeping

An advance in office efficiency—push-button, mechanized record-keeping—has been developed by Remington Rand, Inc., Systems Division, 315 Fourth Ave., New York 10, N. Y., pioneers in the business systems field.

Robot-Kardex consists of a metal unit holding 4,020 sets of Kardex records in 60 trays, or slides, and a desk-top extension at which a clerk sits. When she taps one of the keys of a control panel on the desk surface, the Kardex slide that has been in use returns automatically into the cabinet and the one she has chosen appears, positioned mechanically at the right level for quick reference or posting. Without budging from her chair, reaching or changing her posture, the clerk has 4,020 separate sets of visible records at her fingertips.

The files have all the exclusive advantages of Kardex—visible indexing, visible colored signalling, and automatic computing charts. Slides are not "locked in" the cabinet; any one of them can be easily removed from the desk extension if it is needed elsewhere.



A tap of the key sends the old slide back in the cabinet and delivers a new one (on the other side of the panel) in an average time of three seconds.

ROADMASTER Street Sweeper WIRE

High Scleroscope Rating
Uniform temper.

Specially processed for high fatigue — against breakage. Long wearing. Conveniently cut and delivered in 100 and 200 lb. boxes. Prompt shipment from stock of all standard sizes.

This gutter broom wire will prove an economy in your service.

"MORE MILES PER BRUSH"

JOHNSON Steel & Wire Co., Inc.
Worcester 1, Massachusetts
New York Akron Chicago Detroit
Los Angeles Toronto

CIRCUL-AIR FIRE HOSE DRYER

WRITE FOR BOOKLET

Illustrates how Circul-Air saves hose, shortens drying time, prevents mildew and rot, air conditions as it dries, improves station design.

THE CIRCUL-AIR CORPORATION
575 E. Milwaukee Street
DETROIT 2 MICHIGAN

Cut the Cost OF PARKING CONTROL ABOUT 50%

With

*ALFCO TWIN AUTOMATIC PARKING METERS

Park 2 Cars with 1 Meter

*Alfco Twin Automatic Parking Meters cut parking control costs about in half!

- The *Alfco Twin Meter parks two cars instead of one.
- Only half the number of parking meters to install, maintain, and police.
- Only one clock to wind — one coin box — one housing — one meter to control two adjoining parked cars.
- Half the number of meters makes collections twice as easy.

And with this lower cost, the motoring public gets the advantages of the *Alfco Twin bumper-to-bumper parking plan, which affords ample space to enter and leave parking areas. City after city has adopted this model plan for modern parking control. Write today for fully illustrated free literature — with no obligation.

Models available to suit your needs.

* This denotes products of the American-LaFrance-Foamite Corporation.

INTERNATIONAL METERS, INC.
Executive Offices: 100 East LaFrance Street, Elmira, New York
General Sales Office: 41 E. 42nd Street, New York 17, N.Y.

SUBSIDIARY OF . . .
AMERICAN-LAFRANCE-FOAMITE Corporation
ELMIRA NEW YORK U.S.A.

ALFCO

Municipal Package For The Ford Tractor

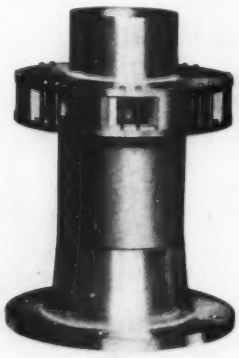
The "municipal package" in operation backfilling a trench recently opened.

A movie sound film in color, reviews industrial equipment available for adaptation to the Ford tractor and features equipment best suited for use in large and small cities and towns.

The Pioneer Mfg. & Supply Co., Springfield, Mo., large midwestern distributors of industrial equipment for Ford tractors, produced the film which is now available for showing through Ford tractor distributors and dealers throughout the United States.

One attachment illustrated is a trench digger for water, gas, power, and sewer line excavations. Another is a Trac-Lift, equipped with the following attachments: angle dozer for backfilling and grading; crane for loading and unloading or laying pipe; a fork assembly for packaged articles; a scoop for loading gravel, dirt, snow, and various loose materials. Any of the four attachments for the Trac-Lift are interchangeable in five minutes. Other equipment includes a post hole digger which may also be used for setting up street markers and for planting trees or shrubs. A street sweeper performs all the jobs of sweeping streets free of dirt, snow, refuse, and debris.

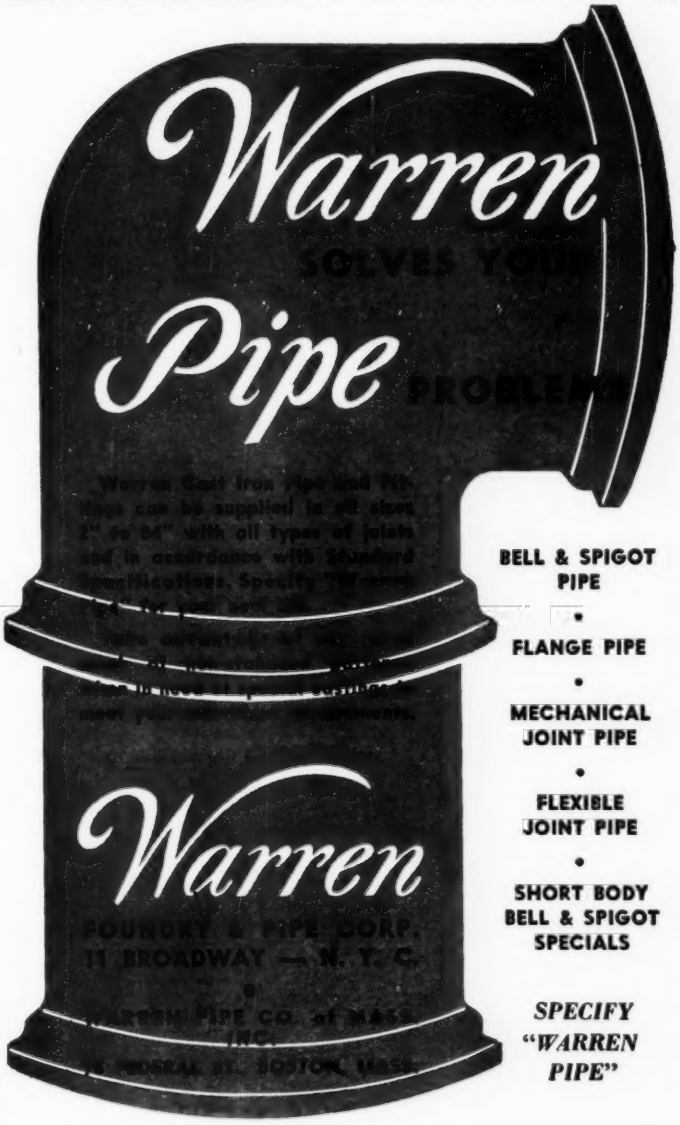
New Alarm Sirens



The B & M Siren Mfg. Co., 763 East Pico Blvd., Los Angeles 21, Calif., has placed on the market its new Model 10, especially suited for use at fire stations, airports, mines, harbors, and beaches for general safety and accident prevention.

The Model 10 is a 10-inch, 110-volt siren that pierces the air for maximum distance under all conditions of air density, fog, and air rarity. The rotor is rated for 18,000 rpm and the siren is provided with a specially designed high-speed series wound motor of over 2 hp.

Ten inches in diameter and 15 inches high, the siren can be mounted with four studs on any flat surface. The weather shield is of a sturdy metal, perforated to admit the proper amount of air. Inside the housing at the top is an inverted cone which evenly projects the noise for maximum distance.



If You Are a Mayor or a City Manager

You are accustomed to making quick decisions . . . solving hard-to-work problems. You are expected to "know all the answers" and you usually do. But occasionally you find yourself facing a situation that seems to defy solution. You want to know what to do and how to do it—you want the right answer, and you want it *at once* —and you can *get* that answer, if you are a subscriber to

MANAGEMENT INFORMATION SERVICE

Established in 1945

An inquiry will bring you an immediate answer based on factual information and best practices developed through research and experience in various cities, with opinion and suggestions for solution. In addition to this consultation privilege.

Management Information Service Also Includes:

1. Monthly journal on municipal administration. Published since 1919.
2. Municipal Year Book, 582 pages. Published since 1934.
3. Special monthly information reports. Ten of the 66 reports issued to date are:

- Methods of Reporting to the City Council
- Parking Meter Administration
- Pay Rates for Selected City Jobs (Jan. and July)
- Preparation of Work Programs and Budget Estimates
- Formula for Installation of Street Lights
- Establishing Job and Work Controls
- Management of Central Municipal Garage
- Methods of Keeping City Employees Informed
- The Making of Administrative Decisions
- Procedure in Establishing the Merit System

Management Information Service is not an experiment. Its value has been tested and accepted by more than 500 cities and towns, with populations from 1,000 to more than one-half million. (Complete list sent on request.) Here are a few typical cities, listed according to population:

Over 100,000—Cambridge, Mass.; Dayton, Ohio; Denver, Colo.; Kansas City, Mo.; San Francisco

50,000-100,000—Columbus, Ga.; Phoenix, Ariz.; Portland, Me.; Schenectady; Verdun, Quebec

25,000- 50,000—Clarksburg, W. Va.; Dubuque, Ia.; Jackson, Mich.; Manchester, Conn.; Raleigh, N. C.

10,000- 25,000—Bessemer, Ala.; Bismarck, N. Dak.; Gulfport, Miss.; Laramie, Wyo.; Sumter, S. C.

5,000- 10,000—Astoria, Ore.; Bozeman, Mont.; Fair Lawn, N. J.; Los Alamos, N. Mex.; Montpelier, Vt.

Under 5,000—Auburn, Calif.; Milford, N. H.; Quakertown, Pa.; Tooele City, Utah; Woodward, Okla.

What Does All This Cost?

You'll be surprised . . . only a fraction of a cent from your tax dollar! This Service is available to cities, counties, and towns, on an annual subscription basis. The population of the city governs the cost of the Service and the number of copies of the Year Book and subscriptions to the monthly magazine you will receive. Do you want to know the cost of this Service to YOUR CITY? We'll be glad to tell you the same day your inquiry is received.

Conducted by

The International City Managers' Association

1313 East 60th Street **Chicago 37, Illinois**

Products for Drainage, Sewers and Water Lines

Armco absestos-bonded pipe for a stream enclosure in Euclid, Ohio.

A paved invert pipe arch for the 600-foot storm sewer in Piqua, Ohio.

Armco Products, consisting of corrugated metal pipe and arches, water control gates, perforated metal pipe, welded steel water pipe, sheeting, tunnel liner, guard rail, bin-type retaining walls and metal buildings, are used for highways, sewers, sewage treatment and water supply, municipal airports and building construction.

Whereas the plain galvanized corrugated metal pipe is suitable for most storm and sanitary sewer purposes, the pipe is also supplied with a bituminous paved invert where erosion is a problem. For severe corrosion, for industrial sewers and outfalls, an asbestos-bonded coating gives the required protection. Asbestos-bonded pipe is made by pressing a thin layer of inert asbestos felt into the molten zinc coating during the galvanizing process. The asbestos layer is treated with a bituminous saturant and tenaciously holds the bituminous coating.

Corrugated metal pipe fitting can be shop-fabricated to meet any requirements. They consist of elbows, tees, Y's and crosses. Manholes and catch-basins are also shop-fabricated to reduce on-the-job costs and give a complete, flexible sewer structure. This service simplifies the field work.

Water control gates are used on sewer outfalls to prevent backwater from floods and tides. LaGuardia Airport, for example, is installing a number of these. There are 27 models, automatic, manual and power operated.

Perforated metal pipe, known as Hel-Cor, is used for the subdrainage and base drainage of streets, airport runways, taxiways and other locations. On U. S. Route 40 between Baltimore and Philadelphia, some 38 miles of this pipe has recently been installed on 20 miles of this highway.

Multi-Plate extends the advantages of standard corrugated metal pipe and Pipe-Arches into the larger sizes. This is done by shipping plates, knocked down, ready for assembling and bolting together on the site. The thick corrugated plates are 52 and 72 inches wide by 6 and 8 feet long to make up pipe 72 to 216 inches in diameter. Multi-Plate arches extend to 24-foot spans. Pipe-Arches vary from 6 to 16 feet in span. Multi-Plate Pipe-Arches to the amount of $500,000 were used for the outfall in tide water, of the storm drain system of Daytona Beach, Fla. Two open channels traversing the city were enclosed with 9,006 feet of this product in two sizes 77x57 inches and 93x64 inches. The City of Cleveland, Ohio,

(*Continued on page* 189)

All-Purpose Striper
Solves Zone-Marking Problem

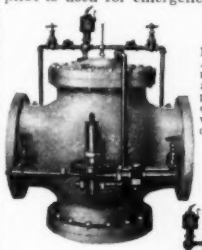
Self-propelled and completely self-contained, designed to meet the needs of city and town street departments, airports and highways, for accurate high-speed striping.

Clean-cut, attractive lines are assured with K-C Air Curtains. Air actuated traction up to 5 mph with a trailer for the operator. Truck-mounted and other models are available for all requirements. Write for illustrated folder.

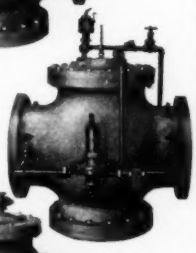
KELLY-CRESWELL CO., Xenia, Ohio

ROSS
AUTOMATIC VALVES

Altitude Valves for tank and reservoir, with two sets of controls—Automatic Hydraulic and Electric Remote Control. Hydraulic pilot normally operates the valve, while electric pilot is used for emergency only.



Model 40-DAWR Double Acting Valve may be operated by electric pilot regardless of elevation of water in tank or reservoir.



Model 30 AWR Single Acting Valve may be controlled in same manner.

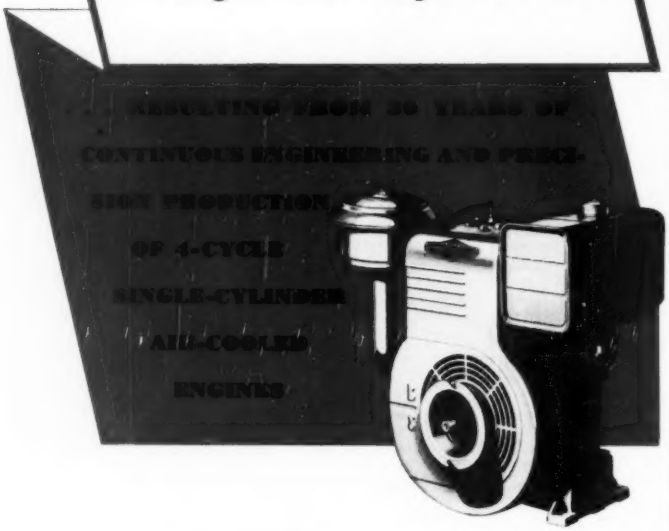
Model 40-AWR Single Acting semi-throttling valve will close on reversal of flow.

Established 1879

ROSS VALVE MFG. CO.
Incorporated
P.O. BOX 596, TROY, N.Y.

As always –

. . . Leaders in advanced features and design developments



The experience gained in building more than 4 million air-cooled 4-cycle gasoline engines—during 30 years of uninterrupted production—plus the knowledge acquired in putting air-cooled power to work on all types of equipment, machinery and appliances—for civilian and military uses—in industry, construction, by railroads and on farms—all this broad technical background has kept Briggs & Stratton always *first* in modern design and advanced features.

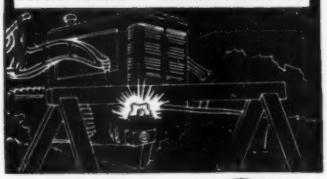
The best in modern development—best methods of precision construction—the best procedures in laboratory and field testing—most complete manufacturing facilities—these are all present and basic in Briggs & Stratton engine building. For all that is best in design, features and performance in air-cooled power, manufacturers, dealers, and users look to Briggs & Stratton.

BRIGGS & STRATTON CORP., Milwaukee 1, Wis., U.S.A.

World Wide FACTORY SUPERVISED SERVICE

4 CYCLE BRIGGS & STRATTON GASOLINE ENGINES

Night Warning At All HAZARDS—BARRICADES



Big Beam 400-F ELECTRIC FLARE

Night wrecks and accidents caused by hazards and barricades can be averted by warning lights and emergency flares. There are a thousand such uses for the Big Beam Electric Flare with red Fresnel lens. Dependable in any weather, set or hang anywhere in any position, knocking over will not interfere with its operation. A flip of the switch gives the choice of either a steady or a flashing flare. Interchangeable clear Fresnel lens converts it to a regular lantern. As easily serviced as a flashlight.

See your supplier, or write direct

U-C LITE MANUFACTURING CO.

1056 West Hubbard Street, Chicago 22, Ill.

Always on the Road

HAUCK

Melting Kettles

Asphalt Tool Heaters

Asphalt Surface Heaters

Road Oil Distributor Burners

Hauck Asphalt Tool Heater and Melter for Binder Cement.

Speed Master Melting Kettle for Asphalt and Tar.

For road paving or repair work, Hauck Oil Burning Tar and Asphalt Melting Kettles, Tool Heaters and Burners are recognized the best for tough service and ready portability. Prompt shipment of any type or size you need. Write for Highway Construction and Maintenance Catalog.

HAUCK MANUFACTURING CO.

112-122 Tenth St. • Brooklyn 15, N. Y.

Armco Products

(Continued from page 187)

has installed many thousands of feet of Multi-Plate arches for its principal storm sewers and stream enclosures.

Other Metal Products

Cities are showing increasing interest in prefabricated metal buildings of sufficiently heavy construction to be classed as permanent. Steelox buildings are ideal for municipal garages, field offices, pumping stations, storage sheds, warehouses and smaller buildings such as watchmen shelters. The Ohio Board of Education has accepted them for additional classroom facilities, and approximately 80 such structures have been sold in that state alone. West Sacramento, Calif., among others, built a 16x30x8-foot Steelox fire station.

The Flex-Beam guardrail brings Armco into the field of built-in-traffic-safety. It is made of 12-gauge high-carbon steel plates 12½ inches wide secured by one ⅝-inch bolt to posts on 12½-foot centers. It is used for dead-end streets, around bridges, and on curves. Katonah, N. Y., uses it for parking-lot bumpers. It is installed along Quaker Ridge Road in New Rochelle, N. Y.

Spiral welded steel pipe is used for water lines and many miles are serving this purpose in Washington, D. C., Cleveland, Ohio, and other cities. This product also is especially adaptable for foundation pipe piles.

Steel sheeting, used extensively for installing sewers and shoring ditches and for coffer dams and bulkheads, is in heavy demand for shore protection work. Tunnel liner plates are used for sewers and water tunnels, street crossings, water and sewer line crossings under railroads and pedestrian underpasses.

Armco bin-type retaining walls have been used extensively by cities at street and railway grade separations as well as for stabilizing steep slopes or protection against shore erosion.

Armco Drainage & Metal Products, Inc., Middletown, Ohio, is seen to be an important municipal supplier. For projects requiring special installation skill on any of the foregoing products, Armco has its own construction crews who will work with the general contractor or the city on a sub-contract basis to make such installations.

A 60-page catalog, other special manuals, handbooks and literature are available on request.

Fulton Bag Names Dallas Branch Head

George W. Williams has been appointed the new manager of the Dallas plant of the Fulton Bag & Cotton Mills, Atlanta, Ga. He succeeds Adolph Mayer, who died recently.

Mr. Williams has been employed in the New Orleans plant also, and for several years has been sales manager at Dallas.

Here's proof SIMPLEX is the finest...

"IN OPERATION 35 YEARS— COMPLETE SATISFACTION"

...says P. J. Scudder, Engineer, Shelbyville Water System

WATER BOARD
J. E. HUFFMAN, CHAIRMAN
N. C. TILFORD
C. M. THOMPSON, SEC'Y

Shelbyville Water System
SHELBYVILLE, TENNESSEE

December 2, 1948

Simplex Valve & Meter Co.
68th & Upland Sts.
Philadelphia 42, Pennsylvania

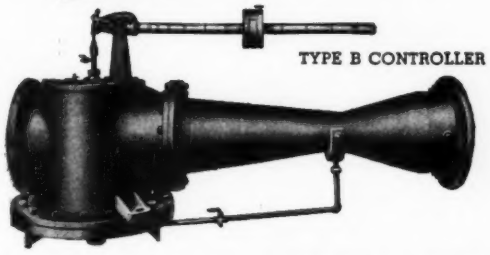
Attention Mr. E. A. McQuade

Dear Mr. McQuade:

In 1915 the Shelbyville Water Company installed two of your Type B Rate Controllers, having a normal capacity of 500,000 gallons each. These controllers have been in operation for thirty-five years and have given complete satisfaction. Every ten years we have replaced the rubber diaphragm with a new one at a very simple repair cost. The controllers are in as good a condition now as they were when installed, and they have given no trouble whatsoever. We are in readiness to install two new filters at the present time which we would like to equip with Type B Rate Controllers if they are still available.

Yours very truly,
SHELBYVILLE WATER SYSTEM
P. J. Scudder, Engineer

PJS:dc



TYPE B CONTROLLER

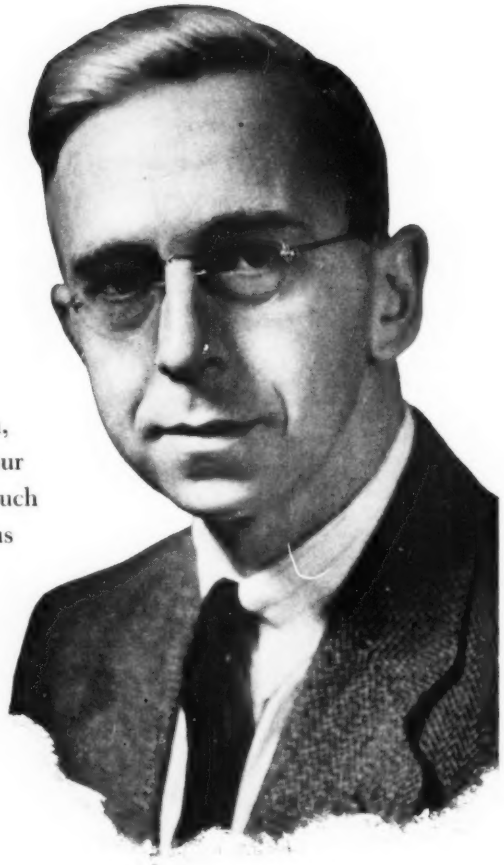
The Simplex Valve & Meter Co., Dept, 9, 6789 Upland St., Philadelphia 42, Pa.

SIMPLEX

VALVE AND METER COMPANY

"We consider our Street Lighting System an investment in *Good Living*"

Says Mayor **Horace S. Graham**
of Poughkeepsie, New York



"MODERN street lighting can be the means to end—or drastically reduce traffic accidents at night and the incidence of crime."

"And," continues Mayor Horace S. Graham, "because of the *extra* benefits that accrue to our city by reason of our lighting system, benefits such as community development, civic pride, stimulus to retail trade and increase in real estate values, we consider it an investment in public safety and a higher standard of living."

Mayor Graham is just one of hundreds of alert, conscientious city officials who regard community welfare as a personal responsibility. And through the installation of modern street lighting, more and more cities are safeguarding the lives and interests of their townspeople.

FOR MORE FACTS

Write for your free copy of "A Planned Program for Better Street Lighting."

The Street and Traffic Safety Lighting Bureau, 155 East 44th St., New York 17, N. Y.

Mechanized Sewer Department Speeds Work

By using a truck-mounted Hydrocrane manufactured by the Bucyrus-Erie Co., South Milwaukee, Wis., the Milwaukee Sewer Department has cut costs about 30% and speeded up the digging of storm inlet overflows and catch basin trenches. The department, which formerly used hand labor, digs over 600 of these trenches each year.

In addition to its regular digging work, the Hydrocrane also sets sewer pipe and places valves and pipe fittings on water mains. With a special bucket, it can clean catch basins quickly and because of its telescoping boom, this fully hydraulic crane can work in extremely close quarters or under overhanging wires and branches.

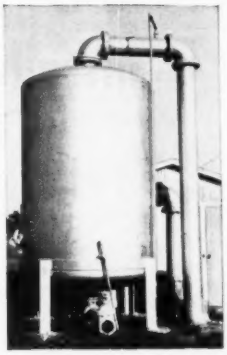
The Hydrocrane is built in two models: ¼-yard, 2 ton; ⅜-yard, 3 ton.

Beaumont Birch Co. Appoints Hampton

R. K. Hampton

R. K. Hampton has been appointed resident manager of the new offices at 50 Church St., New York City, of the Beaumont Birch Co., 1505 Race St., Philadelphia, Pa. Beaumont Birch is the well known manufacturer of bulk materials handling equipment for sewerage, street construction, and other maintenance work.

The McCURDY



SAND & WATER SEPARATOR

Not just a sand trap but an engineered Sand Separator which prevents sand from being pumped into pipe lines and water towers.

- PROTECT YOUR WATER METERS FROM PLUGGING
- ELIMINATE EXPENSIVE METER REPAIR AND SAND CLEANING BILLS

Write today for illustrated literature.

McCURDY SAND AND WATER SEPARATOR COMPANY
4875 Pacific Blvd. Vernon 11, Los Angeles, Calif.

McDonald EST. 1856

with waterworks men who know

IT'S BEEN McDONALD SINCE 1856

For 93 years McDonald Diamond Line waterworks items have been favorites of the trade. Unexcelled for quality, service and dependability, they are the product of finest engineering skill, modern manufacturing methods, and best materials. Specify McDonald and you know you are right.

Write for literature on all McDonald Waterworks Items

A. Y. McDONALD MFG. CO.
DUBUQUE, IOWA

E-4723 — Solid brass tee handle curb stop. Round way. For copper service pipe both ends. Also available in stop and drain. Sizes—½, ¾, 1, 1¼, 1½, and 2 inches.

E-2931—Solid tee handle stop for iron pipe. Round way. Also available in stop and drain. Sizes— ½, ¾, ¾, 1, 1¼, 1½, and 2 inches.

McDonald EST. 1856

◆ BRASS GOODS ◆ PUMPS ◆ OIL EQUIPMENT ◆

Solve your leaf or clean-up problem with a

VACUUM Leaf Loader

Mechanized Speedy Sanitary Low Cost

Write for leaflet

LEAF LOADER DIVISION
American Structural Steel & Tank Co.
21050 W. 8 Mile Road
Detroit 19, Michigan

Every American KITCHENS Garbage Disposer Installed Saves Your City Money!

Civic Authorities Everywhere Agree—Disposers Help Reduce Both Garbage Collection and Health Department Costs!

■ Yes, each disposer installation made in your city means an actual dollars-and-cents savings. Small now, perhaps—but when the time comes that a majority of homes have disposers, your savings will be appreciable.

That's why far-sighted municipal authorities in many cities are *urging* architects and builders to include garbage disposal units in the new houses they build. They recognize that disposers benefit the municipality as well as the homeowner—because they help check spread of disease in addition to reducing collection costs.

Sooner or later *every* family will dispose of its food wastes this more sanitary way. We, of course, hope that you find yourself free to recommend our American Kitchens Disposers. But even if you recommend another brand, we say "go to it". Because the sooner disposers are in universal use, the more healthful we all should be!

The new American Kitchens Disposer. As was cited in *The American City's* study, "Ground Garbage", (Feb., 1948 issue) universal use of such disposers (1) should not overload a sewer system, (2) nor cause trouble of any kind in any well-designed sewer, (3) will effect material savings in the cost of handling garbage.

WHY ENGINEERS SAY THE NEW AMERICAN KITCHENS DISPOSER IS SUPERIOR TO ALL OTHER TYPES

While *all* nationally-advertised disposers have been proved satisfactory, engineers consider the new American Kitchens Disposer the most advanced. For several reasons: the American Kitchens Disposer provides a patented "knee-action" hinge in the center of each pulverizer arm (see diagram) so that disposer absolutely can not jam—even on contact with metal! Also, engineers approve its additional *vertical* shredders, saw-tooth hammers, easier servicing.

American KITCHENS DISPOSER

PRESENTED BY THE MAKERS OF FAMOUS AMERICAN KITCHENS

AMERICAN CENTRAL DIVISION AVCO CONNERSVILLE, INDIANA

Filter System Flown In to Ease Water Shortage

When drought conditions recently caused a critical water shortage in Gasport, N. Y., %Proportioneers, Inc.%, Providence 1, R. I., had its Pur-O-Cel filtration equipment flown from the factory to the parched area.

The diatomaceous earth pressure filter processed up to 90,000 gallons of water per day from an impounded creek and a Chem-O-Feeder treated the supply with hypochlorite. The unit is three by six feet.

Duplicating Supplies From Underwood Corp.

The Underwood Corp., 1 Park Ave., New York 16, N. Y., has announced the addition of a new line of stencil duplicating supplies.

Designed for long reproduction runs and constructed especially strong for stylus work in drawing forms and illustrations, the stencils have a dull, velvet finish that provides excellent visibility. The ink is soluble in water, so the operator can wash off stains with plain soap and water. The correction fluid is packaged to prevent evaporation and waste.

Superior Diesels Used For N. Y. C. Sewage Plants

Most U. S. cities bordering a harbor or river area have a major problem to contend with in sewage disposal.

But New York City's sewage problem is more than a major one. It is one that has reached staggering proportions, for into the New York harbor area pours an estimated 1,000,000,000 gallons of sewage every day of the year. As a result, some of the city's fine, world-famous beaches are unfit for swimming because of contamination.

The city has arbitrarily given itself ten years to clean up this problem—and work has started at the center of a critically contaminated area.

Right now, only foundation piles indicate that anything is brewing at Owls Head Point in Brooklyn off Shore Parkway at the northern end of The Narrows. But the scope of the New York program received a strong underscore when The National Supply Company, Pittsburgh, Pa., announced that six of its Superior diesel engines had been purchased by the New York Department of Public Works to provide power for the new sewage plant which, when completed, will treat about 160,000,000 gallons of sewage per day.

These National Supply diesel engines are designed to run on a dual-fuel principle in which either gas, oil, or both may be used. In this case, a striking economy will be effected in that sewage gas itself will be utilized as fuel.

New York believes it is the first city to develop a sewage plant powered by dual-fuel engines. The engines at Owls Head will drive 900-kw, 60-cycle, 4,160-volt alternating current generators with direct connection exciters. Each of the 8-cylinder engines will produce 1,300 horsepower for this particular application.

Through an integrated sewage disposal plant system in which five plants are already in operation, all of New York's 52 district beaches will some day be free of the contamination that has given the project a top priority on the list of the city's civic undertakings. At the present time, one authority has stated, only 13 beaches in the entire area are sufficiently free of sewage bacteria to be pronounced suitable for bathing.

LITTLE GIANT

POWER SWEEPER

Cuts Your Clean-Up Costs in HALF!

Removes dirt and debris . . . sweeps snow . . . prepares street surface for asphalt paving. Cuts labor costs to the lowest dollar . . . quickly pays for itself. Dependable, time-tested unit . . . hundreds in use. PRICED LOW!

ONE MODEL FITS ALL TRACTORS

Adjustable rotary broom sweeps at any angle. Use with any tractor . . . driven by power take-off—the tractor furnishes the power. No separate engine to maintain, no operating engineer required on the broom. No clutches or friction drive to wear. Variable broom speed to meet all sweeping conditions. Gears sealed in oil. 5, 6, 7, 8 and 9-foot brooms. Sprinkler attachment available.

Let Our Sales Engineer Help Solve Your Sweeping Problems.

Write, stating your needs. Get complete information, prices. Immediate delivery.

Little Giant Prod. Inc.
1585 N. Adams St., Peoria, Ill.

here's the story about how....

Indianapolis Buys MARK TIME Meter *Again!*

5 year fight ends between Automatic and Manual Parking Meters

Indianapolis Star, July 19, 1949

The City purchased Mark-Time again despite a flood of anonymous literature lambasting the meter. The same meter was selected in 1946.

Here's What The Experts Say!

Here is a report made by a Committee of Experts, chosen by the Engineering Council of the Indianapolis Technical Societies Council, at the request of James S. Watson, President of the Works Sanitation Board. This Committee of Experts was composed of a mechanical engineer, an expert on metals, and an expert on clockwork mechanisms.

"Clouds" Eliminated!

"In order to arrive at a decision", the report said, "it was necessary to eliminate those things that tend to cloud the issue, but which are of minor importance. For instance, comparisons were submitted showing the relative unit earning power of one type or kind as against another. This comparison is valueless for the reason that it largely depends on the location and not on the type or kind."

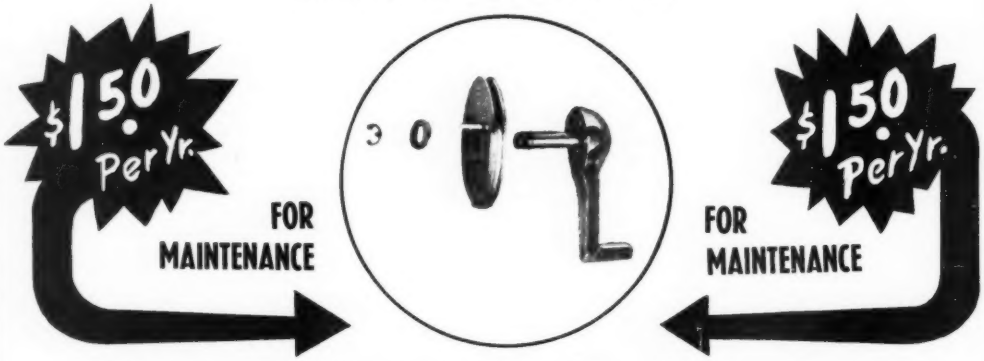
Maintenance Decides The Issue!

"Many other similar things were weighed and eliminated, leaving a clear way to decide which, from an engineering standpoint, indicated it would be the best to buy, considering first, cost and maintenance."

Manuals Chosen!

"Knowing the characteristics of the hand operated and the automatic instruments, together with the problems to be met by the city in using these instruments, this committee recommends the hand operated meter."

Reprinted by permission Indianapolis News Publishing Co.



This is the reason why our simple Manual Parking Meter wins Engineers' Tests

M. H. RHODES, INC. **HARTFORD, CONN.**

Marsteller and Melius Named Vice-Presidents

William A. Marsteller and Robert P. Melius have been elected vice-presidents of the Rockwell Mfg. Co., Pittsburgh 8, Pa.

W. A. Marsteller

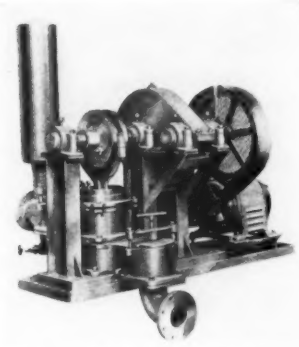
Mr. Marsteller has been manager of advertising and market research for Rockwell for the past few years, as well as vice-president of Edward Valves, Inc., East Chicago, Ind.

Mr. Melius was recently placed in charge of sales of Rockwell's newly created power tool division, which will market wood and metal working tools.

Marlow's New Pump Line

To meet heavy pumping requirements, Marlow Pumps, Ridgewood, N. J., has presented a new line of motor- and engine-driven diaphragm and walking-beam plunger pumps, and eccentric drive plunger sludge pumps.

The pumps have many applications in the transfer of liquids that are too heavy for self-priming centrifugals and



The type PE Simplex sludge pump.

will pump liquids that are so heavy as to be nearly solids. Transferring viscous and clotted compounds and removing trash-laden liquids and thick residues are among the applications.

Normal-duty engine-driven diaphragm pumps with capacities from 3,000 to 9,000 gph come in two 3-inch models and three 4-inch models.

Basic heavy-duty engine-driven walking beam plunger pumps in the line include a 3-inch single model, a 4-inch single, and a 4-inch double model; capacities range from 4,200 to 6,500 gph.

In the walking beam diaphragm and plunger pumps, capacities range from 3,000 to 9,000 gph; eccentric drive plunger sludge pumps have capacities from 3,000 to 14,000 gph.

You Need a KENNEDY Electrically Controlled Valve

Where manual operation is too lengthy or too difficult.

Where valve control is desired at a distant point, or at two or more points.

Where a group of many valves must be operated frequently.

KENNEDY furnishes electrically controlled valves, for standard and low pressure services and all standard A.C. and D.C. voltages.

The motor, reduction gearing and limit switches are fully enclosed in a weather-proof housing. Safe, dependable operation is secured through accurately set limit switch with torque seating and thermal overload protection.

Emergency manual operation provided. Handwheel does not turn while valve is operated electrically.

KENNEDY electrically operated valves are ready for use. Setting of limit switch, trial operation and hydrostatic test are all completed at the factory.

KENNEDY Fig. 611G., Top-mounted Electrical Control on Standard, Iron Body, Double-Disc, Gate Valve; Services up to 125 Steam, 175 pounds Water, Oil or Gas; 4" through 60" sizes available.

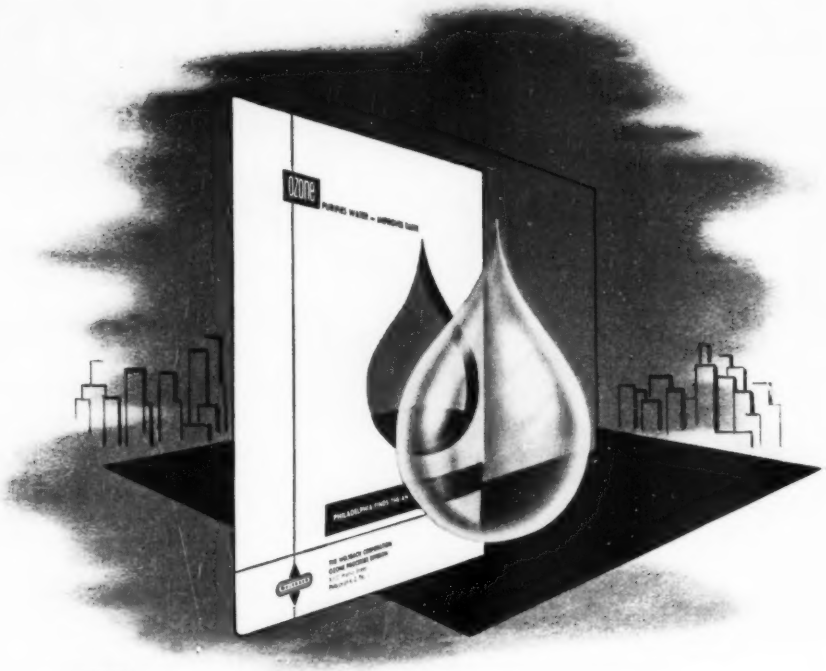
Check List for Use with Inquiries or Orders

- ☐ Size of valve and whether O.S. & Y. or Non-rising Stem.
- ☐ Working or test pressure and actual unbalanced pressure on discs.
- ☐ Type connection; flanged, bell ends, or special.
- ☐ Position of valve in pipe line.
- ☐ Electric current characteristics; D. C. or A.C. voltage; phase, cycles if A.C.
- ☐ Number of control stations wanted.
- ☐ Brief description of installation; fluid or gas controlled, frequency of operation and function of valve.

Write for complete information. No obligation.

THE KENNEDY VALVE MFG. CO.
1030 EAST WATER ST.
ELMIRA, NEW YORK
VALVES • PIPE FITTINGS • FIRE HYDRANTS

OFFICE-WAREHOUSES IN NEW YORK, CHICAGO, SAN FRANCISCO • SALES REPRESENTATIVES IN PRINCIPAL CITIES



Philadelphia finds the Answer

FOR BETTER WATER—WITH *Ozone!*

Installation of the world's largest Ozone plant is Philadelphia's answer to overcoming taste and odor problems in water drawn from *surface supplies.* This is one of the first major steps in this city's progressive, long-range water improvement program.

This new Ozone installation in the Belmont Filtration plant in Philadelphia currently treats about 36,000,000 gallons daily with an ultimate capacity of 70,000,000 gallons a day. It was designed, built and installed by The Welsbach Corporation after two years' of extensive tests demonstrated the efficiency and effectiveness of the Ozone process in producing high quality drinking water . . . pleasant in taste and odorless . . . at reasonable costs.

Do you have a taste, odor or color problem in your water supply system?

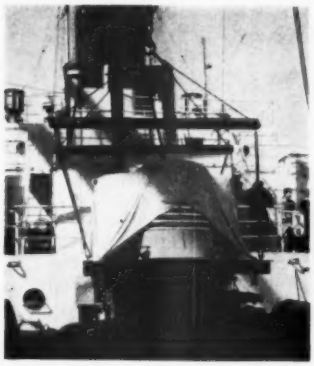
Philadelphia's answer through the Welsbach Ozone Process can be your answer, too!

Write today for the Philadelphia story on Ozonation at the world's largest Ozonation plant. The booklet, "Philadelphia Finds the Answer," will be gladly sent you.

THE WELSBACH CORPORATION
OZONE PROCESSES DIVISION

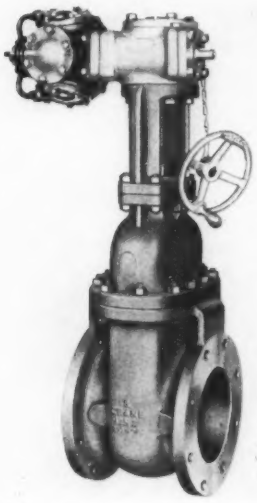
1500 Walnut Street
Philadelphia 2, Pa.

Rahway, N. J., Glendale, Calif., Buy Wayne Sweepers



On the left is the Wayne motor sweeper being unloaded from an ocean freighter at Pier 91 at Jersey City; from there the sweeper was driven, enabled by its self-propelled feature, to its destination in Rahway, N. J. Glendale, Calif., has purchased its second sweeper in less than a year from the Wayne Mfg. Co., 1201 E. Lexington St., Pomona, Calif. From left to right are Don Magill, Director of Purchases; Marie Tonso, City Manager's office; Jack Peacock, master mechanic of the Street Department, and John Murphy, Street Department Supervisor.

Fluid-Motor Operator For Crane Gate Valves



The Crane Co., 836 S. Michigan Ave., Chicago 5, Ill., has produced a simplified fluid-motor operator for gate valves that makes possible extensive use of motor-operated valves because the actuating unit can be easily adapted to standard valves in stock or to valves already installed. Before, this had been almost impossible since previously motor-operated valves have been made up on special order to the requirements of the installation. The device can be operated by water, oil, or compressed air or gas.

There can be no leakage and shut-off devices are unnecessary since when the valve gate reaches the end of its travel in either direction the motor merely stalls still under pressure.

Valves equipped with the new fluid-motor operator are available in most types of Crane iron-body gate valves in sizes 4 through 30 inches.

PREMAX

House Numbers

If your city plans to install a modern numbering system, by all means get the special report showing the modern manner of numbering. Insures easy access to any part of town—eliminates duplication and error.

Then, too, see the new Premax Deluxe and Hycaste Numbers in weatherproof aluminum and brass. Send for the Bulletin and sample number.

PREMAX PRODUCTS
DIVISION CHISHOLM-RYDER CO., INC.
4946 Highland Ave., Niagara Falls, N. Y.

Another "Ace"

by Fisher

M-SCOPE
ELECTRONIC BOX LOCATOR

Locates hidden service boxes, etc., as fast as a man can walk. . . . It's faster — and more accurate — than the old "dip-needle" methods.

Write for 16 page Booklet on leak indicators, box locators and pipe and cable finders.

Fisher Research Laboratory, Inc.
PALO ALTO • CALIFORNIA

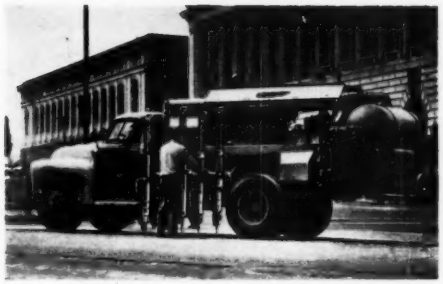
Seeing Double?

Here are two pictures of the same town. What a difference a few years and abundant soft water can make! ¶ *Industry was at a standstill and population was declining, until municipal authorities decided to install a water conditioning system.* ¶ *Soon factories began choosing this town as the site for their new plants, for soft water means lower-cost, speeded-up production. It's essential to modern industry! Every family benefited too, for soft water makes every home cleaning job easier . . . saves soap, fuel, and repair bills.* ¶ *That's why soft water makes a town grow!* ¶ *Does your town enjoy soft water's many advantages? If not, Permutit can provide modern, pure water that perfectly suits your needs. Write to The Permutit Company, Dept. A-9, 330 West 42nd Street, New York 18, N. Y., or to the Permutit Company of Canada, Limited, Montreal.*

Permutit®

WATER CONDITIONING HEADQUARTERS FOR OVER 35 YEARS

Removing Obsolete Trolley Tracks

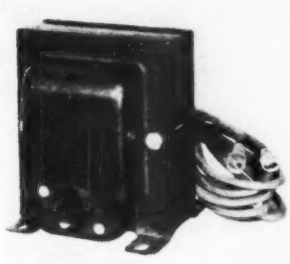


To remove the outer two sets of car tracks from San Francisco's Market Street while maintaining normal traffic, this unit was used to line cut along curbs and tracks before excavating. The cutting is done by a row of 3-inch automatic feed drifter drills mounted on a crossbar equipped with saddles for quick adjustment.

By mounting on the unit a 600-foot compressor manufactured by the Jaeger Machine Co., Columbus 16, Ohio, the contractor was able to add a fifth drill, increasing his daily length of cut by 25%.

A row of five 2⅛-inch holes, 12 inches apart, is drilled in about 30 seconds. The truck is then shifted six inches and a second series of holes is drilled. This preparatory cutting prevents over-break on the pavement when excavating.

Extra Generator Power For Vehicle Accessories



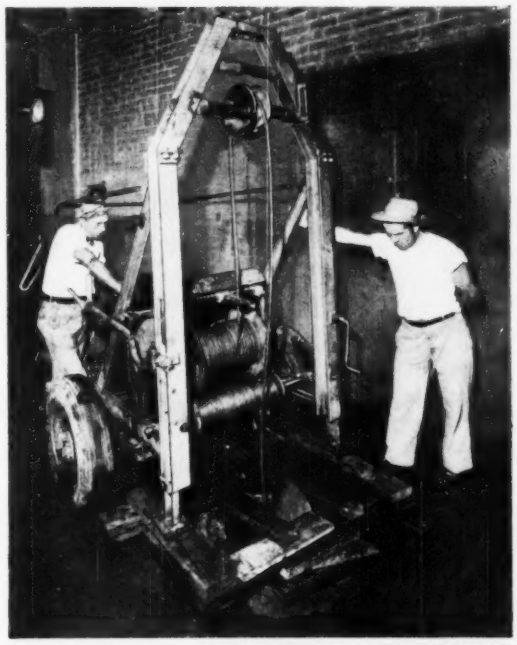
The unit forms a compact package.

City vehicles equipped with the Leece-Neville rectified AC generators may now operate standard 110-volt AC tools, lights, and other appliances right from the vehicle's electrical system. Introduction of a simple transformer connected to one phase of the alternator steps the 6-volt current of the car's system up to 110-volts AC.

A virtual must on all mobile equipment equipped with two-way radio, mobile radio-telephone, electrically-driven sirens, and numerous other modern accessories, the systems are in wide use by police departments, municipal utilities, fire departments, on ambulances, and transit vehicles.

The alternator-transformer combination furnishes ample power for the operation of small motor-driven tools up to ¼ hp: soldering irons, electric blankets; electric sterilizers; wire recorders; mobile public address systems; extension lights; and floodlights.

Two of the transformers made by The Leece-Neville Co., Cleveland 14, Ohio, connected to two phases of the three-phase alternator unit in an open delta circuit provides three-phase, 110-volt current for the operation of high-frequency tools. In this application a maximum of 433 watts output is obtained.



KANSAS CITY BUYS 2ND SET OF "FLEXIBLE" POWER BUCKET MACHINES *(even cleans sewers from cramped basement quarters!)*

Within less than a year from the date Kansas City purchased its first set of Power Bucket Machines this equipment had so completely demonstrated its speed, efficiency and versatility that a second set was ordered—another "on-the-job" proof of performance.

Extreme flexibility of the equipment is shown above. This machine was lowered to the basement of a Kansas City factory in a freight elevator to clean a trunk sewer line. "Flexible" Power Bucket Machines go where the job is—on street level or below—and clean lines speedily and at low cost.

Write the nearest "Flexible" office today for your illustrated catalog.

FLEXIBLE SEWER-ROD EQUIPMENT CO.

9059 Venice Blvd., Los Angeles 34, California

141 W. Jackson Blvd. Chicago, Ill. — 401 Broadway New York 13 — 147 Hillside Ter. Irvington, N. J — P. O. Box 165 Atlanta — P. O. Box 465 Memphis, Tenn.

801 E. Excelsoir Blvd. Hopkins, Minn. — 29 Cerdan Ave. Roslindale 31, Mass. — P. O. Box 447 Lancaster, Texas — 41 Greenway St. Hamden, Conn.

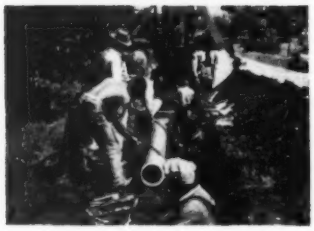
3786 Durango Ave. Los Angeles 34, Calif. — 709 House Bldg. Pittsburgh 8, Pa. — 4455 S.E. 24th Ave. Portland 2, Ore.

Here's how TRANSITE PRESSURE PIPE meets these 7 basic water-line problems . . .

IF YOU are faced with some—or all—of these 7 common water-line problems, here is information about Johns-Manville Transite* Pressure Pipe that may be of help to you . . . facts that tell how this modern asbestos-cement pipe is helping to solve these problems in many communities.

1. Handling costs:

Because it is light in weight and easy to handle, Transite Pressure Pipe keeps handling costs down. Loading, unloading, and all other subsequent handling operations are simplified. More footage can be hauled per truck-load—reducing trucking costs—and distribution along the trench is easier and more quickly accomplished. Moreover, mechanical handling equipment is not necessary except where larger sizes are being used; the pipe sections are easily lowered into the trench with rope slings.



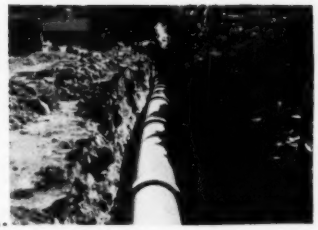
2. Installation costs:

Transite Pressure Pipe offers important economies that help combat increasing costs of water-line installation. It is quickly and easily assembled in the trench. A coupling puller is the only tool necessary. Often, the pipe can be assembled so rapidly that the same foreman supervises both excavation and installation. The speed with which Transite is assembled means that the job is completed with a minimum of time and labor, thereby contributing important reductions in the overall cost of the system.

*Transite is a Johns-Manville registered trade mark

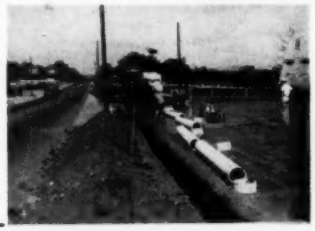
3. Soil corrosion:

Two factors give Transite Pressure Pipe exceptional resistance to corrosion: (1) the corrosion-resistant materials of which it is made; (2) the especially developed Johns-Manville process of manufacture which imparts a high degree of chemical stability to the finished pipe. This high resistance to corrosion has been substantiated by numerous installations. Many of these are serving as replacements in soils so destructive that the useful life of the pipe materials previously used had been seriously curtailed.



4. Internal corrosion:

Transite Pipe, because of its asbestos-cement composition, is not affected by tuberculation. Therefore, it is not necessary to resort to pipe of larger diameter to offset the internal effects of this costly form of pipe corrosion. And because progressive reduction of delivery due to tuberculation capacity is never a problem in a Transite pipe line, pressures and flows remain high—pumps operate at higher efficiencies. These factors are often reflected in better service and lower water rates in communities served by Transite lines.



5. Joint leakage:

Transite's Simplex Coupling was designed to minimize underground leakage . . . and to provide maximum protection against failures resulting from trouble at joints. It consists of only three parts: a Transite sleeve, machined to fit over the pipe ends, and two rubber rings which, when assembled, are tightly compressed between pipe and sleeve. The joint thus formed is tight and flexible. It remains tight in service. Furthermore, each joint may be checked for proper assembly immediately upon completion.

6. Vibration and stresses:

Transite's flexible joints effectively absorb the vibration of heavy traffic—an especially important factor where pipe is laid under busy highways, or near railroad and street car tracks. Because each joint is capable of deflection up to five degrees, the entire line has a flexibility not ordinarily found in other types of waterline construction. This helps compensate for soil movements and other stresses to which the pipe may be subjected . . . provides an effective safeguard against costly pipe failures.

7. Maintenance:

In thousands of communities, Transite Pipe—with its advantages of joints that remain tight and flexible, its corrosion resistance, and immunity to tuberculation—provides low-cost water transportation that requires little, if any, maintenance. Transite lines do not have to be cleaned, lined, or replaced because tuberculation has reduced their original capacity. Reports from communities all over the country prove that Transite's asbestos-cement structure provides economies that continue through the years.

If you would like additional information about Transite Pressure Pipe, write to Johns-Manville, Box 290, New York 16, N.Y. Ask for Brochure TR-11A.

JOHNS MANVILLE JM PRODUCTS

Johns-Manville Transite Pressure Pipe

HARLEY-DAVIDSON MOTORCYCLES

The Choice of

SANTA MONICA POLICE

15 Harley-Davidson solo machines and 3 Servi-Cars are in use by the fine-looking and efficient Traffic Squad of the Santa Monica, California Police Department

OUT where the tourists are as plentiful as the sunshine, control of traffic is a tough problem. In Santa Monica, popular California recreation center, the seasonal influx of visitors added to the normally heavy city traffic imposes extra burdens on the hard-working police department. Santa Monica, therefore, turned long ago to the use of motorcycles as the most effective method of reducing traffic accidents and enforcing regulations. The Traffic Squad is equipped with Harley-Davidsons exclusively, with 18 machines in use.

In your city also, the use of Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars will enable you to get best results in modern traffic control and accident prevention. Ask your Harley-Davidson dealer to bring you complete information.

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

Ohio Brass Company Personnel Changes

The Ohio Brass Co., Mansfield, Ohio, has elected Merrill W. Manz vice president, Roger A. Black general factory manager, and H. E. Shoemaker manager of the foreign trade department.

With O-B since 1920, Mr. Manz's first position with the company was that of development engineer. By 1935, he had achieved the post of general factory manager which he has held until the present promotion.

Mr. Black joined the company ten years after Mr. Manz, holding positions in the sales department, the foreign trade department, and the job of manager of the special products division during the second World War.

Starting as a sales correspondent in the power utilities department in 1934, Mr. Shoemaker progressed to the foreign trade department—with time out for service in the U. S. Army.

Colville Ad Manager For Byron Jackson Co.

T. R. Colville has been appointed advertising manager of the Pump Division, Byron Jackson Co., Los Angeles 54, Calif.

T. R. Colville

Mr. Colville's previous experience includes service in the advertising division of the Chemical Department of the General Electric Co., and the position of assistant program director for an eastern radio station.

Diesel Engines for Power Units

A Hercules DIX4 series unit.

To meet a demand for broader applications of the DIX4 series of 4-cylinder diesel engines, the Hercules Motors Corp., Canton, Ohio, has made available two models as closed-type power units; this in addition to the automotive-type mounting.

This series is the solid injection, compression ignition, 4-stroke cycle type; designed for high speed and heavy duty. The engines start quickly and easily on fuel oil with a conventional electric starter.

The engines are equipped with pressure lubrication with oil pump mounted inside the oil pan. Main flow lube oil filter is attached to the cylinder block, thus eliminating outside lube oil lines.

The patented Hercules combustion chamber insures the complete mixing of fuel and oxygen. It is located at the side of the cylinder bore; during operation, as the piston proceeds to the end of its compression stroke, it passes across the passageway between the cylinder and the combustion chamber, reducing its area and greatly increasing the velocity of the air passing into the combustion chamber. The function of high turbulence is accelerated at the critical time of injection and combustion to permit the highest possible expansion of burned gases for greatest operating efficiency.

The Hercules lines of gas, gasoline, and diesel engines and power units consists of 15 series and 33 models in 2, 4, and 6 cylinders with a power range from 3 to 240 hp and piston displacements 39 to 935 cubic inches. The diesel line comprises 14 series from 12 to 500 hp and a piston displacement of 113 to 1,468 cubic inches.

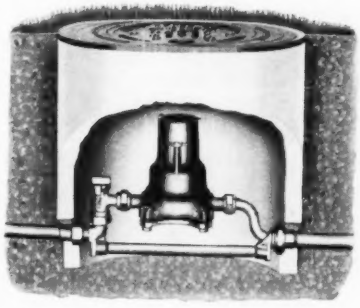
FOR HORIZONTAL METER SETTINGS

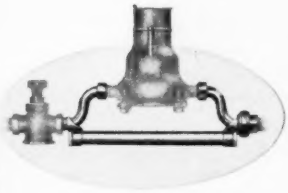
in Close Quarters

With the Ford Linesetter, meters may be set close to walls or floors, inside, outside or in meter boxes without warping or bending service pipes.

At the same time, the Linesetter provides a permanently aligned, properly spaced, electrically bonded opening for the meter.

THE FORD LINESETTER





Send for detailed information and the complete Ford catalog No. 50—FREE.

THE FORD METER BOX COMPANY, INC.

FOR BETTER WATER SERVICES

FORD

Wabash, Indiana

THE KEY THAT LOCKS THE LID

When that key locks the lid the water is turned off and outsiders can't get into the box to damage the mechanism.

The key that locks the lid saves wasting of water and safeguards the community against losses caused by vandals.

In all MURDOCK Water Service Devices you will find this extra protection against carelessness in employees and vandals.

The Murdock Mfg. & Sup. Co.
426 Plum St., Cincinnati 2, O.

MURDOCK

OUTDOOR DRINKING FOUNTAIN

ANTI-FREEZING COMPRESSION HYDRANT

OUTDOOR DRINKING FOUNTAINS
HYDRANTS
STREET WASHERS

SELF-CLOSING ANTI-FREEZING HYDRANT

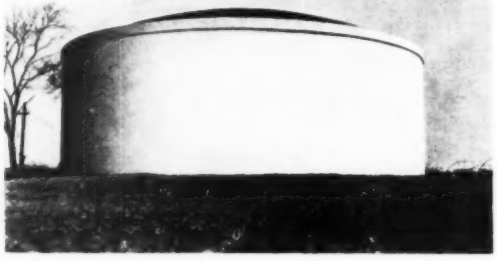
"LOCK-LID" STREET WASHERS ¾" and 1" SIZES

The "SPRAY MASTER" DISTRIBUTOR

The Littleford "Spray Master" costs less to operate, cuts labor costs because it's designed to work with 100% efficiency. No wasted time getting it started on the job—it has fastest heating system, quick acting spray bars, one valve to control spraying. Will handle Asphalt, Tar, Road Oil, Emulsion or Cut-back with spray bar up to 24 feet in width. Made with Full Circulating Spray Bar either end-folding or non-folding. For further details write for Bulletin No. 14.

LITTLEFORD
LITTLEFORD BROS., INC.
500 E. PEARL ST., CINCINNATI 2, OHIO

TANKS



repaired speedily with

"GUNITE"

Have you considered "GUNITE" for repairs to your tanks, dams or other waterworks structures? We repair disintegrated concrete structures of all types with long-lasting "GUNITE." (Sand and cement applied pneumatically). We also build **new** Prestressed Tanks like the above—solid, leakproof, built to last for years.

Write for 48-page "GUNITE" booklet.

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33 N. LA SALLE ST., CHICAGO 2, ILL. • 315 S. COURT ST., FLORENCE, ALA.

The ULTIMATE *in* KANSAS CITY

For enjoyment of living at its best; all rooms are outstandingly gay and attractive. Guests enjoy all club facilities, including the swimming pool, Turkish baths and Swedish massage. Perfect location at 11th and Baltimore.

★ PENGUIN DINING ROOM

★ ALCOVE COCKTAIL LOUNGE

★ OMAR COCKTAIL LOUNGE

★ SKY-HY ROOF

R. E. McEACHIN
Managing Director

Direction
SOUTHWEST HOTELS, INC.
H. Grady Manning, founder

Hotel CONTINENTAL

New Sewerage Lines to Cope With Industry

Twenty-four-inch vitrified clay pipe goes into the new sewer which will give Gustine, Calif., a system capable of handling a volume of sewage normally produced by a population 55 times its size. Situated in the heart of San Joaquin Valley's dairy empire, Gustine's five milk processing plants contribute a huge flow of wash water containing corrosive acids and dextrines. According to the National Clay Pipe Mfrs. Inc., 100 N. LaSalle St., Room 2100, Chicago 2, Ill., 4 miles of 24-inch vitrified clay pipe and several thousand feet of 15-inch clay pipe for connecting sewers will be used.

R. J. Rountree Vice-President Peirce Wire Recording Corp.

Charles P. Peirce, president of Peirce Wire Dictation Systems, Evanston, Ill., announces the election of R. J. Rountree to the position of vice-president of the company. Rountree will have charge of sales and advertising. He comes to Peirce Wire Dictation Systems from the A. B. Dick Company, manufacturer of mimeograph products.

Rountree has been selected by the Peirce Corporation to organize and direct its sales campaign aimed at the dictating machine market.

Public Safety Radio For Belleville, N. J.

In rebuilding the Belleville, N. J., Public Safety radio system, both fire apparatus and police motorcycles have been equipped with three-way frequency-modulated Motorola radio systems manufactured by Motorola, Inc., 4545 Augusta Blvd., Chicago, Ill.

Two new radio equipped Harley-Davidson motorcycles have been added. They are furnished with a special-duty generator and over-sized batteries to supply power for their radios. On the handlebars of each Motorola-equipped motorcycle is a 4 x 4-inch loudspeaker with microphone mounted on the gas tank. The microphones are of closed speaking type, and the rider's voice can be heard in headquarters without interference. Intricate parts of the transmitter and receiver are housed in metal cases mounted on the rear wheels.

BRAXMAR BADGES

Standard Badges Since 1879

Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc.
216 E. 45th St., New York 17, N. Y.

CUTS ICE and SNOW REMOVAL COSTS

Hundreds of "Scotchman" users have CUT ice and snow removal COSTS to the bone. TARCO'S stainless steel spreader applies clear salt farther and faster, and quickly insures SAFE, ICE-FREE pavements. Gone are brine damage complaints. The "Scotchman's" thrifty, "bird-shot" salt pattern is the absolute minimum obtainable for efficient melting.

COMPLETE CONTROL: ***direction, width, and rate of spread.***

WEATHER-PROOFED ENGINE • ELECTRIC STARTER
BAGGED or BULK SALT • USE on ANY TRUCK or PICKUP

Literature? Demonstration?

TARRANT MFG. CO.
EAST AVE., SARATOGA SPRINGS, N. Y.

who's the boss?

you?

or your forms?

YOUR forms—instead of you—can dictate your office procedure . . . unless they are flexible. But if they can be changed quickly, easily, and economically, then *you* are the boss.

You can make these changes to meet altered conditions, when you use A. B. Dick mimeographs. Their versatility enables you to re-design your systems work overnight, if necessary. And with this versatility you still get production speed, legibility, simple operation, and over-all economy. For mimeographing is **BALANCED** duplicating.

MODEL 435
The last word in a mimeograph. Table-top model with built-in electric motor. Lets the operator sit down. Model 27 stand with foot control illustrated. For use with all makes of suitable stencil duplicating products.

To get full details on how this **BALANCED** duplicating can make your systems work flexible, call your nearby A. B. Dick distributor. You'll find him listed in your phone book. Or, merely send in the coupon below.

Mimeographing is ***BALANCED*** *Duplicating*

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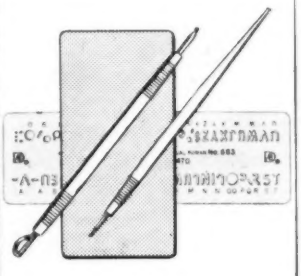
the first name in mimeographing

NEW ACCESSORIES
Complete new line of styli, lettering guides, and screen plates. Produce professional looking copies with a wide range of type faces, illustrations, drawings, and shadings. New roll point stylus makes handwriting easy.



A. B. DICK COMPANY, Dept. AC-949.
720 W. Jackson Boulevard, Chicago 6, Ill.

I would like complete information on how **BALANCED** duplicating can make our organization routine flexible.

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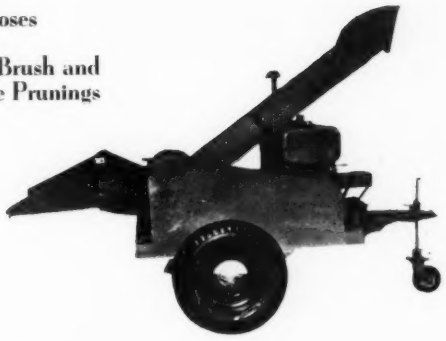
Brush Chipper Disposes Of Brush and Tree Prunings



A trailer-mounted chipper.

The Asplundh brush chipper eliminates three steps in the disposal of brush and tree prunings: hauling, dumping, and burning. The mulched wood forms a valuable by-product as a fertilizer and in the combatting of soil erosion. Since the mulch of wood chips does not pack tightly, aeration of the soil goes on and surface water is readily absorbed.

With 30 hp at 2,200 rpm, the chipper handles limbs to 6 inches in diameter. Inserted at the intake chute, brush is automatically drawn into the machine (no pushing is necessary); the chips are ejected with great velocity and with an exhaust chute can be directed into bins, wagons, or ground piles.

When mounted directly on a motor vehicle, the power is obtained from a split propellor-shaft takeoff, eliminating the necessity for a separate engine. Five V belts operate the chipper from the power takeoff to assure non-slip transmission of power. The chipper unit may also be tractor or trailer mounted. It is manufactured by the Asplundh Chipper Co., 501 York Rd., Jenkintown, Pa.

Van Vleet Vice President Of Line Material Company

John M. Van Vleet has been appointed to fill the newly-created post of vice president in charge of manufacturing for the eight United States plants of the Line Material Co., Milwaukee 1, Wis.

J. M. Van Vleet

Mr. Van Vleet will have general authority to control and coordinate all production operations including industrial engineering, plant engineering, and all phases of manufacturing of the firm's electrical distribution equipment, street lighting, and airport lighting.

In 1942, following several years as a lubricating engineer for the Shell Oil Co., he joined the Kyle Co., which merged with Line Material in 1947.

New Motor Grader From Allis-Chalmers

The Allis-Chalmers Mfg. Co., Milwaukee 1, Wis., has put on the market a new 34.7 hp model D motor grader with such big-grader features as tandem rear-wheel drive, tubular frame design, and rear-mounted engine-transmission construction for greater visibility.

Engineered for low-cost maintenance and light construction work, the machine has a short turning radius and can achieve a speed up to 18.61 mph. The Roll-Away moldboard rolls the dirt away from the blade instead of packing it down, cutting down on friction of dirt against the moldboard.

LABOR COSTS IN OUR METER SHOP ARE 'WAY DOWN SINCE WE HAVE PRACTICALLY ALL BUFFALO METERS IN THE SYSTEM
The extreme simplicity of Buffalo Meters reduces the need for repairs. When servicing is finally necessary, less time is required. Assembly is unsurpassed for simplicity and parts are inter-changeable.
AMERICAN BRONZE CASE NIAGARA GALV IRON CASE WATER METERS
BUFFALO METER COMPANY
2902 MAIN STREET, BUFFALO 14, N. Y.

OREN

ALL NEW *"BIG JOBS"*

• *HIGH-POWER*
• *MULTI-SERVICE*

NEW STANDARD MODELS WITH MODERN RUGGED DESIGN 750 & 1000-G.P.M. PUMPS—190 & 240-H.P. ENGINES

WRITE FOR INFORMATION

OREN ROANOKE CORP.
ROANOKE, VIRGINIA

MEMO

LOW IN PRICE

FITS THE ORDINARY 2" STANDARD

Yes, the strength of a parking meter means everything – steady operation under all conditions, low maintenance costs, high income, and avoidance of complaints and criticism. The Husky – companion meter to the famous Karpark "Superior" – is built to deliver all this and more. Be sure to have the facts at hand. Write today.

THE *Husky* AUTOMATIC PARKING METER

THE KARPARK CORPORATION • CINCINNATI 6, OHIO

FWD Promotions

A. J. Danley M. O. Stockland, Jr.

A. J. Danley has been promoted to the position of advertising manager of the Four Wheel Drive Auto Co., Clintonville, Wis., and M. O. Stockland, Jr., has been made director of sales.

Nordberg Appoints Walsh

Frank O. Walsh, Jr., has been appointed sales representative of the heavy machinery division in the Southeastern territory of the Nordberg Mfg. Co., Milwaukee 7, Wis. His offices are in the Volunteer Bldg., Atlanta, Ga.

F. O. Walsh, Jr.

Mr. Walsh's diesel engine experience includes ten years with the former McIntosh & Seymour Division of the American Locomotive Co., a year with the De LaVergne Engine Co., and a year with Busch-Sulzer Bros. Diesel Engine Co., just prior to its merger with Nordberg.

New Unit Bar Screen Mechanically Cleaned

The American Well Works, Aurora, Ill., manufacturers and engineers of pumping, water conditioning, and sewage waste treating equipment, have put on the market a mechanically cleaned bar screen with grinder for sewage plants. Fully automatic, the new Unit Screen is adaptable for minimum channel widths and settings, or for parallel multiple installations for large flows. It is designed for channels from 2½ feet to 5 feet wide and with minimum depth setting at 2½ feet.

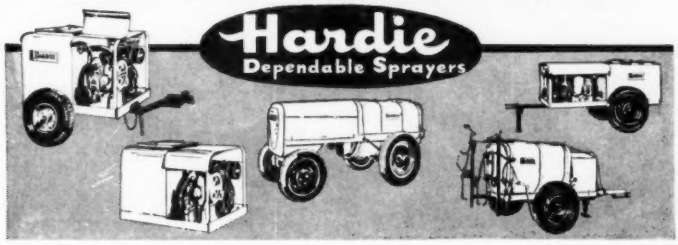
A special feature of the unit is the pivoted rake which causes the teeth to enter the bottom of the screen bars horizontally. The rake gets under and picks up all the screenings from the bottom of the screen—it does not push them away to pile up in front of the bars out of reach of the rake. As the rake rises at a point just above the tray slide, it automatically drops and withdraws 45° radially to release the screenings into the sorting tray. Here they are either flushed into the grinder, an optional piece of equipment, or into a removable container.

Each unit is furnished with completely automatic electrical control. Water-level control electrodes are mounted in the upstream channel to insure positive starting of the screen cleaning mechanism whenever an accumulation of debris causes a significant difference in water level at the screen. A limit switch stops operation with the rake out of the flow when time control or water level control cycles have been completed. Shear pin protection is provided for overloads.

Write for your copy

THE 1949 Hardie Catalog reveals many new and advanced features in the design and construction of High Pressure Sprayers. Shade tree pest control and the various other requirements which demand a high pressure sprayer today in forestry, park and public works maintenance operations all can be efficiently carried out by the same Hardie unit. Hardie Specialized Spray Guns for long distance and close work, high and low pressure weed booms, and other inexpensive accessories easily attached enable any Hardie to do many different jobs, providing more utility value than ever before.

THE HARDIE MFG. COMPANY
Los Angeles 11, Calif. • Hudson, Mich. • Portland 9, Oregon
Export Dept., Detroit 26, Mich.
Canadian Office, Clarence W. Lewis & Son Ltd.—Grimsby, Ontario



All-New and . . .
Just as Rugged as They Look

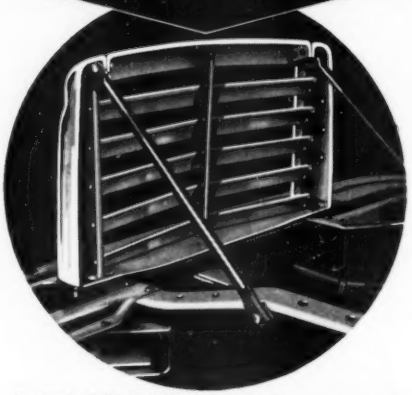
There's a new look in heavy duty trucks . . . all-new "H" line GMCs. These great new trucks, in weight ratings from 19,000 to more than 90,000 pounds, pace the entire heavy duty field in styling that adds to the prestige of your business. And they pace the field in design and engineering that give you better performance, lower operating costs, longer life.

Four new gasoline engines offer greatly increased power, in addition to traditional GMC extra value . . . famous four- and six-cylinder GM 2-cycle Diesels have higher compression for even greater agility and economy. New, stiffer, straight side rail frames, new wide-track axles, new broad-beam, extra comfort cabs . . . new features by the score make all-new GMC "H" models best for all heavy public utility transport. Let your nearest GMC headquarters give you complete details.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

GMC
GASOLINE • DIESEL
TRUCKS

THE INDUSTRY'S ONLY
BUMPER-BUILT FRONT END



Typical of GMC "H" line ruggedness are angle-braced, frame-mounted radiator grilles with top and sides of spring steel bumper stock, heavy gauge fenders, wide, thick bumpers . . . for complete front end protection, axle to emblem.

New Small Tractor

The Agricat, manufactured by Earl H. Pence & Co., Inc., 742 Bancroft Way, Berkeley 4, Calif., provides power enough to pull a 12-inch plow or a 4-foot tandem disc; it may be used for leveling, backfilling, and other earth-moving jobs. For sewer, water and sidewalk-maintenance departments this machine is small enough to work under low-hanging obstacles.

One of the big advantages of the Agricat is that its narrow width—38 inches—enables it to do refilling, leveling, or compacting that might otherwise require hand labor. The blade is manually controlled.

With a 12-inch clearance for row work, the machine is designed to permit working 4 inches outside the track on close-up jobs. With two speeds forward and one reverse, it works for 8 hours on three or 4 gallons of gas. The tractor with dozer is 6 feet long, 41 inches high. It is powered by a 6-hp air-cooled Wisconsin engine, has friction clutch, and 6-inch-wide tracks.

Smoke Prevention

Smoke abatement has long been a live municipal issue. As smoke and soot are unburned fuel, the best and

Poor mixing over the fire may be overcome by high-velocity jets.

the most economical way to eliminate them is to burn them. Shown here is a PliOjet over-fire air system consisting of turbo-blower, butterfly air valve, manifold and alloy jet nozzles.

The PliOjet system introduces secondary air above the fuel bed where it is needed, and thoroughly mixes the air with the unburned gases. Jet air streams injected into the firebox where and when needed provide the necessary air and turbulence to mix the combustible gases with oxygen and thus obtain complete combustion.

The principle of over-fire air for preventing the formation of smoke is not new but has only recently been perfected in practical application.

If you operate boilers, incinerators, or other furnaces guilty of excessive smoking, it will pay you to obtain recommendations. Every municipality having a smoke problem should find useful a new folder describing this system and available from Plibrico Jointless Firebrick Co., 1800 Kingsbury St., Chicago 14, Ill.

ROLL YOUR OWN TRAFFIC LINES

with the new, easy-to-use economical and lightweight

LITTLE GIANT HANDI-LINER*

THE SPEEDY HAND-OPERATED LINE PAINTER

*pat. pending

The new "Little Giant" Handi-Liner is used and endorsed by government agencies, state and municipal road commissions and leading business organizations. Saves time and money. Paints perfect traffic lines almost as fast as operator can walk. Long-lasting, sturdy. No moving parts to get out of order. Uses any good traffic paint.

only $24.50 complete

Highest quality Line-marking Paint: white, $2.70 gal. Yellow, $2.85 gal. F.O.B. Baltimore, Maryland.

ORDER TODAY! 2-year guarantee should last a lifetime!

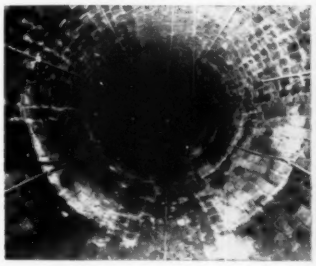
WRITE FOR CIRCULAR & ADDITIONAL INFORMATION

LASTING PRODUCTS CO.

paint manufacturers

Franklintown Rd. Plant Balto. 23, Md.

"GUNITE" RENEWS OLD BRICK SEWERS



These pictures show how we are rebuilding nearly four miles of combination sanitary and storm sewers at Bloomington, Illinois, by lining them with mesh reinforced "GUNITE."

Erosion of mortar joints and dislodged bricks made many sections of these 65-year-old sewers both dangerous and inefficient. The new "GUNITE" linings will restore them to greater than original strength and result in many more decades of useful service at a fraction of the cost of new sewers.

All work is done without opening streets. Sewer service is maintained by installing temporary flumes or by-passing through relief sewers.

This job and many other profitable uses of "GUNITE" are illustrated and described in our new 64-page General Bulletin (D) 2400. Send for your free copy today.

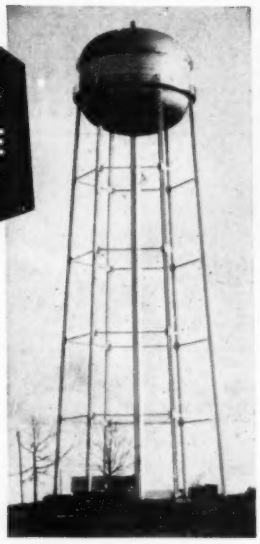
CEMENT GUN COMPANY

"GUNITE" CONTRACTORS

GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.

MANUFACTURERS OF THE "CEMENT GUN"

DEPENDABLE WATER SERVICE

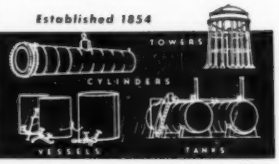


● For almost a century Cole elevated tanks have provided a dependable water supply for mills and communities. Cole quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank.

Send us your inquiries for tanks from 5,000 to 2,000,000 gallons — stating capacity, height to bottom, and location. Write for latest Cole catalog—"Tank Talk."

R. D. COLE MANUFACTURING CO.
NEWNAN, GA.

Established 1854



YOU can have traffic control with these SIGNS

. . . . . and many others. Economically, too! Select from our complete line. All signs are rustproof and are designed for durability.

CAST ALUMINUM REFLECTORIZED MARKERS

Install the most modern Street Marker and eliminate maintenance while improving civic beauty.

WRITE FOR FREE CATALOG NO. 8

EASTERN METAL PRODUCTS CO.
ELMIRA HEIGHTS, N. Y.

New . . . Permanent

HOLD EVERYTHING!
SEE THE NEWEST AND BEST
LAKE SHORE
PERMANENT ALUMINUM STREET SIGNS
LOW COST NO MAINTENANCE
VISIBLE DAY & NIGHT
Wire or Write Today for Complete Information
Catalog #20-5 Illustrated
LAKE SHORE MARKERS
Div. of Lake Shore Pattern Works
654 W. 19th Street, Erie, Pa.

Aeroil
Introduces for Fall Season 1949
NEW PORTABLE
Oil Burning Incinerator
For Streets • Parks • Playgrounds, etc.

Stop wasting time trucking leaves, rubbish and combustible waste. The Aeroil Portable Oil-Burning Incinerator mounted on two steel wheels is easily handled by one man and rubbish can be burned safely on the spot. The oil burner makes it possible to burn wet and damp materials as well as dry waste. Torch Outfit is removable for 101 all-year-round time, labor and money saving uses.

GETS RID OF FALLEN LEAVES QUICKLY

This new unit will pay for itself getting rid of the fallen leaf problem this Fall. Consumes leaves as quickly as you can rake them and holds leaf ashes which can be dumped anywhere and saved for fertilizing purposes. Send for free leaflet No. 647A.

AEROIL PRODUCTS CO., INC.
5 Wesley Street
South Hackensack, New Jersey
Chicago • Dallas • San Francisco • Seattle
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Aeroil GUARANTEED PRODUCTS

FILTERS
For Sale

Used 84" diameter vertical pressure filters, complete with pipings, valves and fittings, strainers, filter beds, pressure guages, sight glasses, pump and motor.

Combined filtering area 115 square feet.

Write:

Clyde Park District Commission
District Warehouse
1909 South 52nd Avenue
Cicero 50, Ill.

Jaeger Appoints Yearling

The Jaeger Machine Co., Columbus 16, Ohio, has appointed J. H. Yearling as general sales manager. Associated with Jaeger for 22 years, Mr. Yearling had served as credit manager and assistant treasurer before entering the sales department where he has been manager of advertising and market research since 1941.

J. H. Yearling

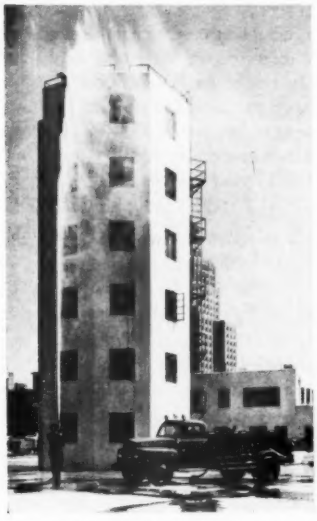
Jaeger builds an extensive line of pumps and air compressors, mixers, spreaders and finishers, truck mixers, and hoists.

Carrying Capacity Increased After Pipe Cleaning Project

Two examples of the economy of in-place pipe cleaning were demonstrated recently in Glendale, Calif., by the Los Nietos Pipe Cleaning Div. of the Flexible Sewer-Rod Equipment Co., 9059 Venice Blvd., Los Angeles 34, Calif. A 9,000-foot section of 23-year-old cast iron pipe was cleaned in 47 minutes with a subsequent increase of velocity of flow to 6.2 feet per second from 3.5 f/s and decrease of pressure from 147 psi to 130 psi, with the discharge quantity rising from 4.75 mgd to 8.8 mgd.

One-Man Pumpers Control Brush Fires

Inside of our city we maintain sufficient water for fire protection. But even here, during the dry season, we have many grass and weed fires that require dispatching an engine or some portable equipment. Often we can neither spare such equipment nor ignore such fires.



In many instances important fires have occurred in districts that have been depleted of apparatus during the dry season of the year. Experience has shown that losses can easily mount if you cannot quickly bring to bear sufficient equipment to effect control.

The Oklahoma City Fire Department has long recognized the need of specially designed portable self-contained fire equipment for this part of the country, due to the lack of water. We asked one of our old-established firms to design and build us two portable self-contained units that could be operated by one man, and put in operation quickly.

The picture shows one of these units made by the Boardman Co., Oklahoma City 1, Okla., projecting a stream of water above the roof of our 6-story drill tower. These 700-gallon tank pumping engines can extinguish a majority of the fires more economically than the use of regular fire engines. Being able to do this with only one man makes this unit essential for prairie, brush, and grass fires that would destroy farms or timber lands.

G. R. McAlpine, *Chief*
Oklahoma City Fire Department
428 West California Ave.
Oklahoma City 4, Okla.

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modern planning

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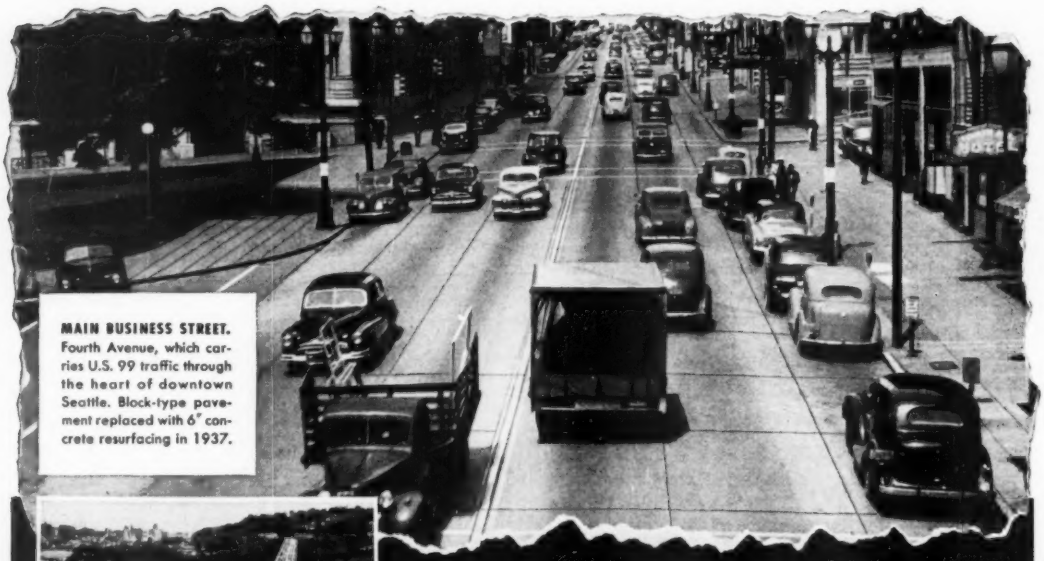
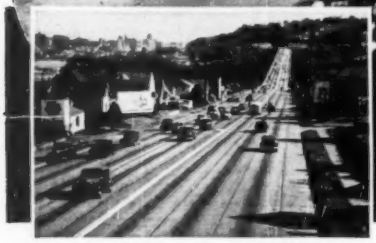
For Full Details Write or Wire
ABRAMS AERIAL SURVEY CORP.
612 East Shiawassee Street
LANSING 1, MICHIGAN

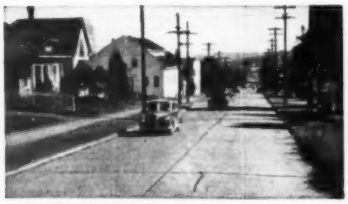


MAIN BUSINESS STREET. Fourth Avenue, which carries U.S. 99 traffic through the heart of downtown Seattle. Block-type pavement replaced with 6" concrete resurfacing in 1937.



In Seattle maintenance costs are lowest on *CONCRETE STREETS*

PRINCIPAL ARTERIAL STREET. Aurora Avenue, built in 1933, provides 3 traffic lanes in each direction for the unobstructed movement of heavy and high-speed traffic (1) traveling to and from outlying residential districts and (2) entering and leaving Seattle over U. S. 99, the Pacific Highway.



RESIDENTIAL STREET. 22nd Street, N.W. Renowned for the first recorded use of dummy groove contraction joint. This street was paved in 1921.

RESIDENTIAL STREET. West Viewmont Way. Paved with portland cement concrete in 1948.

SEATTLE HAS MORE than 11,000,000 sq. yd. of concrete streets —more sq. yd. per capita than any other city in America with more than 100,000 population. There's a reason:

Street maintenance records for a 25-year period beginning with 1924 show that the average annual cost of maintaining portland cement concrete streets was only $.00098 per sq. yd. per year—*less than 1/10th of one cent.* The average annual cost of maintaining the two other types of pavement was $.00563 and $.00682 per sq. yd. respectively—*5½ to 7 times as much!*

Twenty-five years ago only 30% of Seattle's paved street yardage was concrete, but its long life, low maintenance cost and many other advantages resulted in steadily increased use. Today concrete accounts for 69% of the city's paved street yardage. Despite this preponderance of concrete, Seattle taxpayers have paid 72½% less to maintain the concrete pavements than to maintain the two other types of pavement combined during the 25-year period.

The experience which made concrete the preferred pavement in Seattle has been repeated in hundreds of cities. Concrete usually costs less to build than other pavements of equal load-carrying capacity, it costs less to maintain and it lasts longer. These three factors result in ***low annual cost,*** which pleases taxpayers.

For more information about how to build ***low-annual-cost*** pavements, write for free booklet, "*Design of Concrete Pavements for Municipal Streets.*" Distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

DEPT. A9-4, 33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

New Tower Trucks For Municipal Services

Municipal utilities find increasing need for well designed service tow trucks. The utilities concerned are not only the municipal electric departments, of which there are over 2,000, but also the traffic bureaus which service traffic-signal units, and the shade-tree commissions which have learned the economy of trimming trees by chain saws operated conveniently from the platforms of tower trucks. Two lines of three models each are announced by the J. H. Holan Corp., 4100 W. 150th St., Cleveland 11, Ohio.

The first is a new low-cost aerial ladder adaptable to any standard service body with or without a high roof enclosure. When not in use the truck bed is clear for other types of work. The ladder is constructed of two sections of 12 feet, 13 feet or 14 feet and extends to a maximum over-all height of 26 feet. They have maximum extended heights from the ground of 22 feet, 24 feet and 26 feet with platform heights of 19 feet, 21 feet and 23 feet.

The other Holan type is a new hydraulic tower that rises from a collapsed height of only 10 feet to 30 feet. It is available with stationary, rotary, and transverse platforms.

This unit was designed by Herman Troche, chief engineer of the Corporation, and features a four-section telescoping tower. Having all the load resting on heavy steel box sections, makes it possible for the transverse platform to be extended 14 feet from the center line of the chassis to the end of the platform, when elevated to a height of 23½ feet. This tower also is available in three models: two sections, can be raised to a height of 17 feet; three sections, to 23½ feet; and four sections, to 30 feet.

ECONOMY PLUS VERSATILITY!

Introduced as an inexpensive special-duty fire fighter, the BOARDMAN TANKER, through its versatility in operation, has become an invaluable unit in fighting all types of fires!

Its effectiveness, proven in fighting fires in rural areas, and grass and brush fires, is accomplished by the power take-off pump operation which permits water discharge while the truck is standing still or in motion. The pump of this BOARDMAN TANKER has sufficient volume to handle two 1½" hose lines. It can be furnished in tank capacities of either 500, 600, or 700 gallons.

Tanker shown is one of two built for the city of Oklahoma City.

Other BOARDMAN fire fighting apparatus . . .

- Pumpers
- Rescue Squad Trucks
- Hose Carts

THE BOARDMAN CO.
1411 S. W. 11TH STREET OKLAHOMA CITY, OKLA.

From Small Schools to Huge Plants . . .

WATER HAMMER is serious

but is so easily eliminated with

THE WILLIAMS-HAGER *flanged* SILENT CHECK VALVE

Write for complete information on The Williams-Hager Flanged Silent Check Valve—that has proven successful on the most difficult installations.

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

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World's Fastest Earth Boring Equipment

KA-MO Earth Boring Equipment

—Bores horizontal holes *fast* under highways, streets, railroads, canals, alleys, sidewalks, lawns, parkways, channels, foundations, etc.

—For gas, water, sewer and drainage mains and service connections.

—For electrical transmission . . . cable, conduits and service connections.

Leaves Ground Surface Undisturbed!

Eliminates expensive trenching, back-filling, settling of ground in trenches, refilling, tamping, and costly expense of maintaining highway, street, lawn and other surfaces for several years.

KA-MO Boring Equipment works in a short trench when boring horizontal holes. It is operated by an air or electric motor, with power unit located several hundred feet away if desired. Using a light tripod, KA-MO Equipment drills holes on slopes or in locations inaccessible to trucks or tractors.

In soft earth, horizontal boring is done through a caisson which is moved along as work progresses and prevents the ground from caving in. *The same equipment bores vertical holes for poles, posts, piling, anchors, etc.*

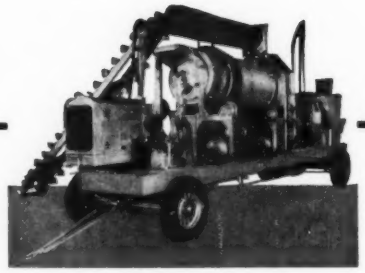
Inexpensive!

KA-MO Drills are manufactured in diameters from 3 to 24", and in 4' sections, which hook into a continuous boring tool as the work progresses.

Complete information and prices will be furnished upon request.

53474

KA-MO TOOLS, INC.
2121 S. Troy Street • Chicago 23, Illinois



This Portable Asphalt Plant is Suitable for All Paving Maintenance

Almost any type of pavement can be repaired economically and efficiently with a White Portable Asphalt Plant. Asphalt, brick, concrete, macadam, can be easily patched or resurfaced.

It will match any bituminous surface. Produces for immediate hot application or makes mix for deferred cold laying.

Contains internally fired rotating dryer, pug mill mixer, bituminous heating kettle, volumetric measurement, air controls. Mounted on pneumatic tires, or furnished for stationary operation. Capacities 4, 8, 12, 25 tons per hour.

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Elkhart **White Mfg. Co.** Indiana

HAND STORAGE BATTERIES

EXTRA HEAVY-DUTY*

For Police Radio Cars, Sanitation Trucks, Snow Plows, Sweepers, Emergency Trucks, Ambulance and Fire Apparatus.

*Heavy, ultra low antimony plate frames . . . hand-pasted, tank-formed . . . heavy glass mats . . . acid and heat resisting microporous rubber separators . . . splash decks . . . double weight cell covers . . . highest grade hard rubber containers.

Hand Laboratory, Nyack, N. Y.
FOUNDED 1930

New Equipment for Alexandria, Va.

Oren 7-man canopy type rescue-squad apparatus recently delivered to Alexandria, Va., by the Oren Roanoke Corp., Roanoke, Va. Note the compartment-type body. In addition to the 2,000-watt light powered by a portable generator, there is a variety of lights, both portable and stationary. Other equipment includes a 200-gpm booster pump, booster tank, and fire-fighting rescue equipment.

New Vibrating Screed

An improved vibrating screed permits the placing of more than 300 cubic yards of 8-inch slab in less than 8 hours, and leaves the surface of the slab so true to grade that it is practically finished. This eliminates the tiring and costly job of hand-puddling and spading. Almost self-propelling, this new screed handles large slabs, roadways, floors, airport runways and aprons. Two operators, says the manufacturer, can strike off a slab 12 feet wide and 10 inches deep in the stiffest concrete. The screed is fully described in Bulletin 491 of the Stow Mfg. Co., Binghamton, N. Y.

The screed at work.

Exhibitors Represented At FSWA Convention

The following members of the Water and Sewage Works Mfrs. Assn., Inc., have reserved exhibit space for the forthcoming convention of the Federation of Sewage Works Associations to be held at the Hotel Statler, Boston, Mass., October 17 through 20:

THE AMERICAN CITY Magazine
American Well Works
Builders-Providence, Inc.
Ralph B. Carter Company
Chain Belt Company
Chicago Pump Company
Cloroben Corporation
Dorr Company, Inc.
Engineering News-Record
Flexible Sewer-Rod Equipment Company
Hardinge Company
Infilco Inc.
Jeffrey Manufacturing Company
Johns-Manville
Link-Belt Company
Lock Joint Pipe Company
Pacific Flush-Tank Company
Preload Companies
Public Works Magazine
Sewage Works Engineering
Simplex Valve and Meter Company
Vapor Recovery Systems Company
Walker Process Equipment, Inc.
Wallace and Tiernan Company, Inc.
Warren Pipe Company of Massachusetts, Inc.
Water and Sewage Works
Westinghouse Electric Corporation
Worthington Pump and Machinery Company
Yeomans Brothers Company.

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PITTCHLOR

water treatment

Here are just two of numerous conditions where Pittchlor will save you money:

1. Where less than 500,000 gallons of water are treated daily.
2. Where the available chlorine demand is not large.

Pittchlor does the same effective job as liquid chlorine—but saves on equipment investment required. Pittchlor is saving money for many water systems around the country.

A high-test calcium hypochlorite containing 70% available chlorine. Granular, free-flowing, non-caking. Packed in 5 lb. cans (9 per case), 3¾ lb. cans (12 per case) and 130 lb. drums.

Write for descriptive literature and any other specific information you want. Pittsburgh Plate Glass Company, Columbia Chemical Division, Fifth and Bellefield, Pittsburgh 13, Pa.

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NEW MULTI-MATIC billing system for the smaller utility . . .

- 3 RECORDS IN ONE WRITING
- NO TRANSCRIPTION ERRORS
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This remarkable new device can be used with the new insulated Customer Service Counter-Desk for the utmost in efficiency. It can also speed your payroll and general accounting. Any clerk can operate it.

If you are now billing by hand, this new system will save you up to 50% on clerical time. It combines posting and billing into one writing, one proof and one audit—much the same as machine billing in the large utilities.

Multi-Matic is the *inexpensive* way to get automatic alignment of each record to proper column and line. All related forms are posted in one writing. No copying from one form to another. Time saved. Transcription errors eliminated. Books always in balance. Auditing simplified.

And the new system is easily adapted to the needs of *any* smaller utility for simultaneous posting of all forms . . . whether ledger plan, register plan or stub plan; postcard or paper bill. And the forms may be designed for use later on a Remington Rand Bookkeeping Machine when volume justifies a change.

For details, call your nearest Remington Rand office. Or write to Public Utilities Systems Dept., 315 Fourth Ave., New York 10.

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Remington Rand

THE **FIRST** NAME IN BUSINESS SYSTEMS

Sweeps Acre an Hour Either Indoors or Out

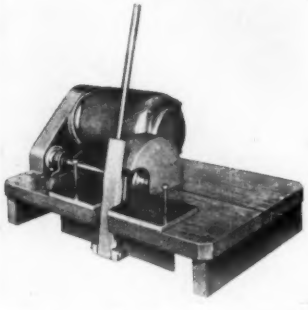
The Tennant Model 36 industrial power sweeper sweeps aisles at speeds up to 6 mph or cleans open areas at the rate of 54,000 square feet per hour. Sweeping a path 36 inches wide, the machine has a revolving brush that throws dirt into a hopper.

With easy steering, instant reverse, foot throttle speed control, the Model 36 offers the maximum in maneuverability. With a width of only 42 inches, U-turns are a facile accomplishment.

The engine is a 5½-hp, 2-cycle Onan, or a 6-hp, 1-cycle Wisconsin; air-cooled. The dirt hopper holds about 9 cubic feet; the tires are solid cushion, puncture proof. The sweeper, manufactured by the G. H. Tennant Co., 2530 N. 2nd St., Minneapolis 11, Minn., comes complete with fiber brush, ready to operate.

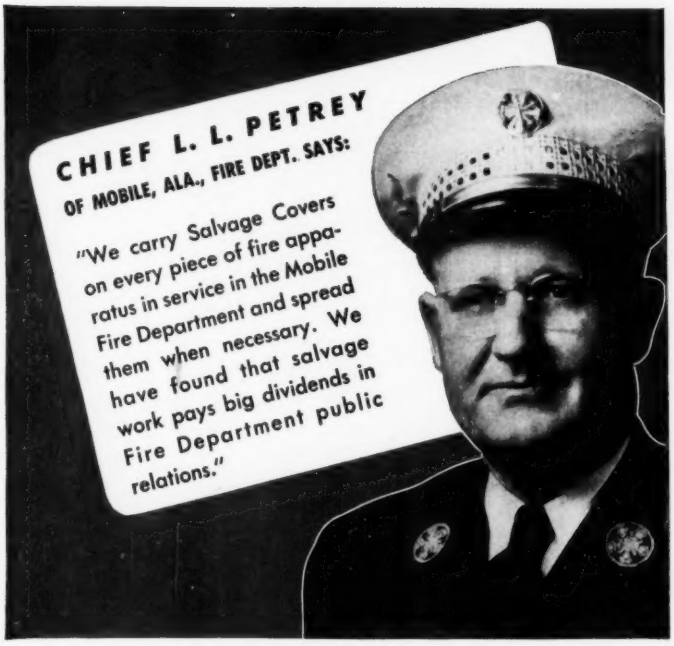
New Hose Cut-Off Machine

Aeroquip Corp., Jackson, Mich., manufacturers of flexible hose lines and self-sealing couplings, is producing



a hose cut-off machine that operates even on hose reinforced with plies of wire braid. The machine cuts hose up to 3 inches in diameter.

All moving parts of the machine are guarded; the unit is small enough to mount on an ordinary shop bench; it can be moved easily when not in use.


CHIEF L. L. PETREY
OF MOBILE, ALA., FIRE DEPT. SAYS:
"We carry Salvage Covers on every piece of fire apparatus in service in the Mobile Fire Department and spread them when necessary. We have found that salvage work pays big dividends in Fire Department public relations."

For Top Dependability—Specify

Shuredry GREEN-BAK SALVAGE COVERS

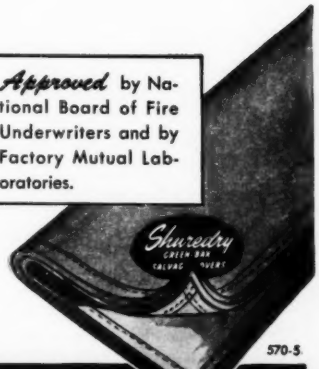
Fulton Shuredry Salvage Covers pass every test for water penetration, seepage and pliability—Shuredry—the PREFERENCE of fire departments everywhere.

FIRE CHIEFS: In your requisition for salvage covers, be sure to specify Shuredry Salvage Covers, sold by your equipment dealer. Fulton Green-Bak Salvage Covers are light in weight, easy to handle, and are made to give long dependable service.

CITY MANAGER: Buy Shuredry Salvage Covers from your fire equipment dealer. Other quality Fulton products that will give you long, economical service are Fulton triple-strength tarps, Fulco Cotton Concrete-Curing Mats.

SHUREDRY Salvage Covers can be obtained through your fire equipment dealer.

Approved by National Board of Fire Underwriters and by Factory Mutual Laboratories.



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ABOLISH YARD RAKING
PULVERIZE AUTUMN LEAVES
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MOW-MASTER
Grind-a-Leaf
Extra Service, Rotary Power Mower
IMPROVES LAWNS—ENRICHES SOIL—KEEPS YARD NEAT AND CLEAN—NO NEED TO RAKE, HAUL OR BURN LEAVES NOW—EASY TO RUN—2 H.P. ENGINE—STURDY, ALL METAL MACHINE—BUILT FOR YEARS OF SERVICE.
See your dealer or write for
FREE
Literature
MOW-MASTER
CUTS GRASS AND WEEDS, TOO
Simply remove Grind-a-Leaf Attachment—Done in a jiffy
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CUT Installation TIME & COST

It's EASY to lay century-lasting mains with McWane PRECALKED Cast Iron Pipe.

One man with a calking tool and a hammer can do the job quickly and easily . . . for all he has to do is "socket the spigot and calk"!

No lead to melt and pour! No expensive equipment! No skilled labor! Installation time cut! Costs reduced!

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ALL SIZES 2" thru 12"

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BIRMINGHAM, ALA.

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THE X-RAY FOR PUBLIC WATER SYSTEMS

A PITOMETER SURVEY

is an Audit of the Entire Water Distribution System

A completely objective check-up to determine its present efficiency and ability to handle future demands—this is the highly specialized type of service on which Pitometer Engineers concentrate.

Fifty-two years of this unique service to water systems throughout the United States, Canada, Central and South America have given Pitometer Surveys a reputation for unfailing ability to conserve available supply, decrease operating costs and increase revenue.

The Pitometer Company
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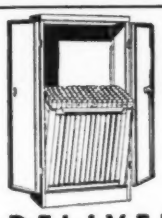

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THE MUNICIPAL INDEX

Saves your catalog from the wastebasket. It reaches the buyer when he's buying.

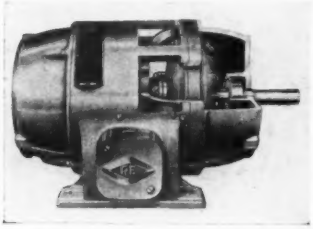
Approximately 16,000 city and town officials and private water company superintendents who receive the annual Municipal Index use it regularly as a buying guide.

THE MUNICIPAL INDEX
470 Fourth Avenue New York 16, N. Y.

GMC's New Heavy-Duty Model

The first of the new heavy-duty H models recently announced by the GMC Truck and Coach Division of the General Motors Corp., Pontiac, Mich., is driven off the assembly lines by M. D. Douglas, general manager. Other GMC officials, from left to right are J. E. Johnson, sales manager of the truck division; P. G. Dempsey, superintendent of Truck Production; and J. S. Falberg, factory manager.

Fluid-Shaft Electric Motors



Fluid-Shaft motors featuring a single frame, integral design of motor and fluid-drive coupling are announced by the Reuland Electric Company of Alhambra, Calif. They offer many advantages wherever loads require smooth acceleration, protection from "jamming" and shocks, or where the loads are difficult to start. Typical of these installations are conveyors, bridge and trolley drives on cranes and mixers. Write for free Engineering Folder No. E-6.

New Haven Makes Tamper-Proof Certificates

New Haven, Conn., has adopted a new tamper-proof method of imprinting birth, marriage, and death certificates which makes it virtually impossible to alter the date on the certificate without destroying the certificate itself. The Todd Protectograph checkwriter, made by the Todd Co., Rochester, N. Y., shreds indelible ink into the fibers of the paper.

According to John T. Coleman, New Haven's registrar of vital statistics, "Birth dates are becoming of greater legal significance now that they are being incorporated into Social Security numbers by the federal government. The superiority of our new method to our former custom of typing in the dates is so great that there is hardly any comparison in effectiveness. The same machine can also be used for its original purpose—protecting checks."

THIS STANDARD, 10-YARD PAK-MOR GARBAGE BODY CUTS COLLECTION COSTS

Pak-Mor Saves on Mileage —Saves Man-Hour Costs!

There's no trick to cutting garbage collection costs when your city operates a fleet of PAK-MOR Garbage Collection Units.

Cities everywhere are reducing expenses with the PAK-MOR. PAK-MOR's gigantic packer plate compresses the garbage as it is collected. The normal 10-yard body is capable of carrying almost 20 YARDS OF LOOSE, UNPACKED GARBAGE.

Think of the savings this means! You get twice the load on every haul! You save in gasoline—you save in manpower!

And the PAK-MOR unloads itself—with the packer plate pushing garbage out through rear gates. Fast action! Easy to clean, too!

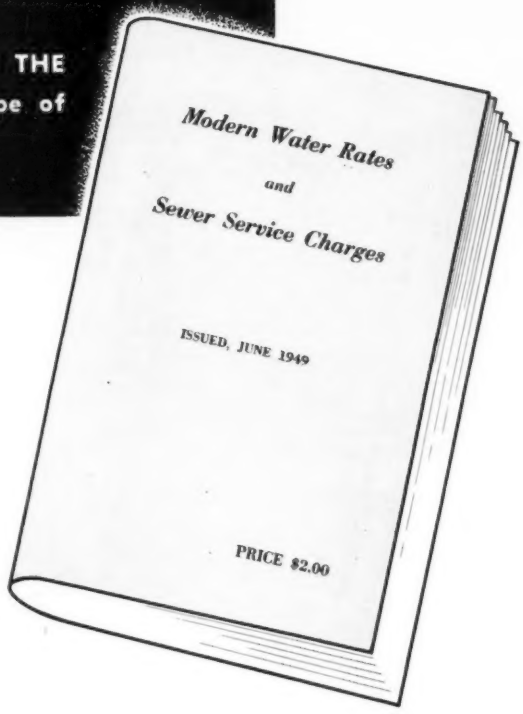
Write today for illustrated literature and specifications. Help YOUR city cut garbage collection costs.

USERS REPORT:
One PAK-MOR Garbage Unit Is Replacing Three or Four Ordinary Open Type Trucks

PAK-MOR MFG. CO.
812 N. FLORES ST. SAN ANTONIO 1, TEXAS

Water Rates

FROM SELECTED CITIES ACROSS THE COUNTRY. With data on the type of water system each supports.



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SEWER SERVICE CHARGES

now in successful use supporting well - operated sewage works

Giving examples of charges based on . . .
plumbing fixtures
water use
strength of industrial waste.

Plus—

WRITTEN DISCUSSION ON

what types of water rates are in use and how to select the one your community needs.

- How to set a minimum water rate that means something.
- What to charge out-of-city customers.
- What hydrant rental really means and how to calculate it fairly.
- How to frame a sewer service charge that works.

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Yes, please send me by return mail .... copies of your WATER RATES AND SEWER SERVICE CHARGES at $2 per copy.

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Ludlow Valve Company Engages D. D. Ackerman

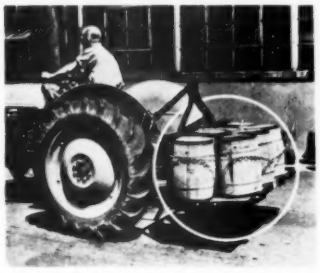
David D. Ackerman has been employed by The Ludlow Valve Mfg. Co., Inc., of Troy, N. Y., as sales engineer with headquarters in the New York City office at 11 West 42nd St.

D. D. Ackerman

Before joining Ludlow, Mr. Ackerman was head of Seaboard Well and Pump Co. of Closter, N. J.

New Carry-Lift For Lift-Type Tractors

The Carry-Lift manufactured by the Pittsburgh Forgings Co., 44 Wall St., Coraopolis, Pa., can be attached in a few seconds to tractors through the regular implement suspension points to handle loads as heavy as 700 pounds, or the full capacity of the tractor lift.



The important feature of this new unit is its quick conversion from a platform lift to a fork lift so that it both lifts and carries. It can be used as a platform lift either with or without a back panel, and pockets are provided for standard 2- by 4-inch stakes. The frame is punched for easy securing of loads and for the addition of a wooden platform if needed.

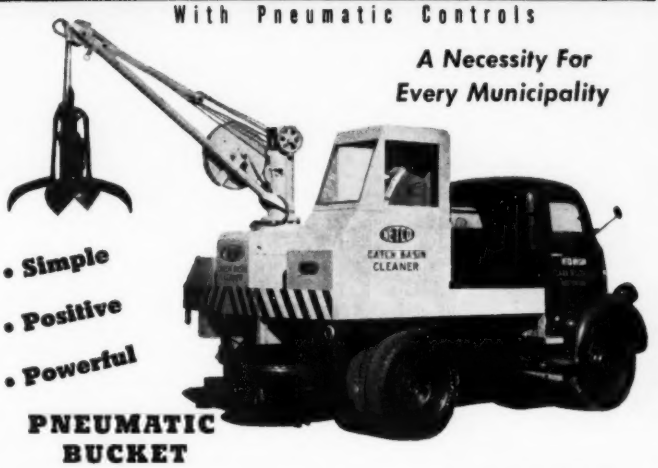
Since the platform practically rests on the ground, lifting of heavy objects is eliminated—they are easily tipped and rolled onto the platform.

Bode-Finn Sells Hydrocrane

The Bode-Finn Co., 2650 Spring Grove Ave., Cincinnati, Ohio, and 1518 E. First St., Dayton, Ohio, has added the Hydrocrane to the line of $\frac{3}{8}$- to $2\frac{1}{2}$-yard excavators it distributes for the Bucyrus-Erie Co., South Milwaukee, Wis. They will sell and service the all-hydraulic, truck-mounted crane in southern Ohio, southeastern Indiana, and in the three northernmost counties of Kentucky.

The NETCO CATCH BASIN CLEANER

With Pneumatic Controls



A Necessity For Every Municipality

- Simple
- Positive
- Powerful

PNEUMATIC BUCKET

Although it has large capacity, the Netco Bucket will operate through an opening as small as 16 inches. This Bucket will easily remove sticks, stones, bottles, wire, and other such debris from all catch basins.

These Cities and Many Others Own One or More

Netco Catch Basin Cleaners

Boston, Mass.
New York City, N. Y.
Indianapolis, Ind.
New Brunswick, N. J.
Harrison, N. J.
East Cleveland, Ohio
Binghamton, N. Y.

- **The Netco Catch Basin Cleaner can be mounted on any short wheel base truck having at least 8 ft. in back of cab. You can purchase unit separately and mount on your own chassis.**
- **The Netco Unit can be removed from truck and chassis in 30 minutes.**
- **The Netco can be operated continuously because the material removed from catch basins is loaded into other trucks. This unit will average 20 to 30 catch basins per 8 hour day.**
- **The Netco Bucket closes pneumatically, assuring positive and maximum digging efficiency.**
- **Positive and simple control of pneumatic bucket, boom swing, hoist clutch and boom brake by compressed air.**
- **The Bucket is lowered and raised by one cable. Only one hose is required to close it, and it is opened by powerful spring action.**
- **The Netco has a hoisting capacity up to 1500 lbs.**

For Complete Details Contact

NETCO DIVISION
CLARK-WILCOX COMPANY
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Boston 34, Massachusetts

The FRED W. HANKS CO.

★ FOR ALL MAKES OF WATER METER DISCS ★

For over 30 years, the Fred W. Hanks Company have been specialists in the manufacture of meter discs. We have supplied the water works field with over 2,000,000 meter discs in this time, proving that we have the experience and the product to meet your most exacting demands.

Specify these discs for use in new meters and depend upon them for effecting reliable meter repairs.

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Don't Gamble—Be Sure!

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Featherweight Models 85, 85A and 87 will meet your every requirement.

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UNITED STATES BRONZE TABLETS...

for signs, statues, cornerstones, homes, hospitals, schools, municipal buildings

One of the country's largest plants devoted exclusively to bronze tablet work assures you of the *finest* in bronze at *lowest* prices. Free samples, sketches, estimates—prompt mail service. WRITE TODAY FOR FREE CATALOG!

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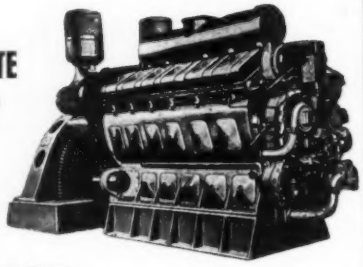
DIESEL GENERATOR SETS

FOR IMMEDIATE DELIVERY



UNIT CAPACITIES 10 TO 1420 KVA

A.C. 50 AND 60 CYCLES ANY VOLTAGE

Write or wire today for bulletins and complete information regarding these fine fully guaranteed DIESEL ENGINE GENERATING UNITS.

AG SCHOONMAKER CO INC.

Power Division

50 CHURCH STREET NEW YORK 7, NEW YORK

FREE

Send for this interesting booklet today!

Approved by representatives of Management, Labor and the Public

In words and picture, it tells you

—How our U. S. Economic System started
—Why Americans enjoy the world's highest standard of living
—Why we take progress for granted
—How mass production began
—How we have been able to raise wages and shorten working hours
—Why more Americans have jobs than ever before
—Why the mainspring of our system is productivity
—How a still better living can be had for all

MAIL THE COUPON to Public Policy Committee, The Advertising Council, Inc., 25 West 45th Street, New York 19, N. Y.

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Published in the Public Interest by The American City

Attachment Converts Sprayer to Duster

The Lawrence Aero-Mist Sprayer Co., 58B Federal St., Greenfield, Mass., has completed a dust hopper attachment that can convert the standard Aero-Mist sprayers into either dry or wet dusters.

The Lawrence hopper provides positive feed control from full to empty hopper; uniform fluffing of dust — no bridging; ability to handle any dust; quick emptying feature. The hopper holds 2 cubic feet of dust and feeds at the uniform rate of 2 to 10 pounds per minute.

FMC appointments

As of September 1, Francis E. Fairman,, Jr. is appointed manager of sales, Transformer and Allied Products Divisions, Apparatus Department of the General Electric Co. at Pittsfield, Mass. Since 1945, Mr. Fairman has been vice president of the Food Machinery and Chemical Corp. and general manager of its Peerless Pump Div. with headquarters in Los Angeles. Before joining FMC, he was with the Apparatus Department of G-E for more than 20 years.

G. F. Twist succeeds Mr. Fairman as general manager of Peerless Pump. Mr. Twist was previously general manager of Stokes and Smith Co., Philadelphia, Pa., a wholly-owned subsidiary of FMC.

F. W. McCann

R. H. Hull

Frank W. McCann, previously head of centrifugal pump sales at FMC's Indianapolis, Ind., works, has been appointed manager of Peerless' Atlantic district with headquarters at 37 Wall St., in New York City. Replacing Mr. McCann at Indianapolis is Robert H. Hull.

Heavy Paving Breaker Eliminates Heavy Lifting

Le Roi-Cleveland has announced a new heavy paving breaker, the 52AJ Air-Jac, that is designed to relieve the

operator of heavy lifting normally associated with the 80-pound-class paving breaker.

With an integral air lift cylinder that utilizes line air pressure to lift the tool and pull stuck steels, the Air-Jac is constructed with a lift cylinder that has a leg parallel to the breaker steel through which the lifting force of 100 pounds is exerted. After penetrating pavement in a normal manner, line air pressure is applied to the lift cylinder through a control at the breaker handle. For breaking through upper-story concrete floors, the air cylinder leg is kept on solid concrete, thus eliminating the necessity for two-man operation or rope slings.

The Air-Jac is manufactured by the Le Roi Co., 1706 South 68th St., Milwaukee, Wis.

THE MODERN LAWN MOWER SHARPENER

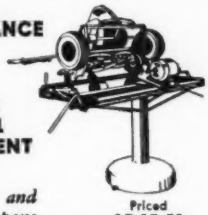
CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

•

Economically and Quickly Sharpens All Municipal Mowers



Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36-inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor remain in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 258

ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.

160 N. FAIR OAKS AVE. • PASADENA 1, CALIF.

GET YOUR COPY of how to "Stop Steel Tank RUST"

This informative brochure will give you a complete picture of the *CATHODIC PRINCIPLE* of providing complete, lasting protection against expensive, destructive rust in your water tanks. Tells how Harco puts it into operation, how it prevents rust, where it can be used, specifications,—and how to go about putting this information to use in eliminating rust damage. Write to Harco Corp., 2156 E. 4th Street, Cleveland 15, Ohio. Simply ask for "*Stop Steel Tank Rust*" and include name and title, please. There is no obligation, of course.

HARCO CORPORATION

Greater Savings with

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COLUMBIA SIGNS

COLUMBIA PLASTIC MARKERS and SIGNS are practically INDESTRUCTIBLE . . . CUT DOWN on MAINTENANCE . . . ASSURE GREATER SAVINGS FOR YOU!

COLUMBIA'S revolutionary SIGNS are made of rugged, chemically-inert plastic, of seamless construction, that resists oxidation, deterioration, porosity.

These signs have the strength of steel . . . the natural material resiliency of plastic. They bend under pressure . . . but snap right back into shape, and resist the severest mechanical abuse. COLOR is molded integrally and permanently throughout their thicknesses. The signs conform to new standardizations in sizes, colors, shapes, lettering styles, and legends.

Write for
COLUMBIA Booklet
It will give you a wealth of up-to-date Traffic Marker information.

GUARANTEE! The plastic base material in COLUMBIA SIGNS is guaranteed against rust or corrosion for the life of the installation.

COLUMBIA SIGN & SIGNAL CORP.
10030 LORAIN AVE. CLEVELAND, OHIO

Using the 5-HP GRAVELY
IS LIKE HAVING
EIGHT MORE MEN
On Your Maintenance Crew

Yes, City records *prove* that the Powerful 5-HP GRAVELY Tractor with its 17 attachments does the work of eight men. . . . Some of these attachments listed below will help you cut your city's maintenance costs:

30-Inch Lawn Mower
72-Inch Gang Mowers
42-Inch Sickle Mower
50-Gallon Sprayer
Power Sweeper
Snow Plow
Rotary Plow
Air Compressor

Seventeen attachment are available. Fill out the coupon below for our NEW 1949 Catalog of GRAVELY Equipment. See how the GRAVELY can save your city money—do the work of eight more men! Mail today!

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GRAVELY MOTOR PLOW AND CULTIVATOR COMPANY
BOX 973, DUNBAR, WEST VIRGINIA

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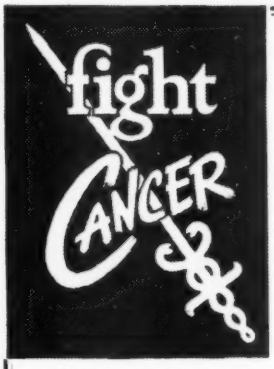
17 YEAR-ROUND, TIME-PROVED ATTACHMENTS

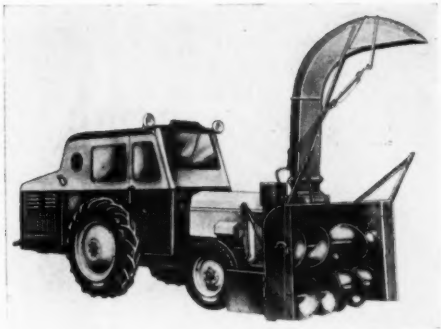


"FIGHT CANCER"

Trite words? Not when you know the tragic facts of which these words are sum and substance. Last year more than 200,000 Americans died of cancer—rich and poor, young and old. Research and education are our most potent weapons in the war on cancer. Your contribution is needed to carry on the fight—to wipe out cancer—to guard yourself and your loved ones from this dread disease.

AMERICAN CANCER SOCIETY

Tractor-Mounted Loader, Snow Blower



The Cyclone is a tractor-mounted snow-blower and loader that fills a 10 cubic-yard truck in 35 seconds. Fitted with two endless right and left thread screws, the machine carries the snow into the blower; from there it is directed right or left, throwing snow distances of 100 or more feet.

The cabin and the chassis can be dismantled easily to permit conversion into a tractor during the summer months, or a broom of 30 inches in diameter and 84 inches wide can be substituted for the blowing equipment.

The blower of the Cyclone is powered by a Ford V-8 engine placed in the rear of the cabin, in which are installed all controls. As a special adaptation, the blower has a snow chute of 300° radius of action mounted on ball bearings with an electric control. A hydraulic system operates the hinge-type chute to direct the snow to the trucks or to avoid any obstacle. The blower fan shroud is electrically controlled, with a swing of 60° left and right of vertical; it can also be set at vertical to blow the snow through the snow chute.

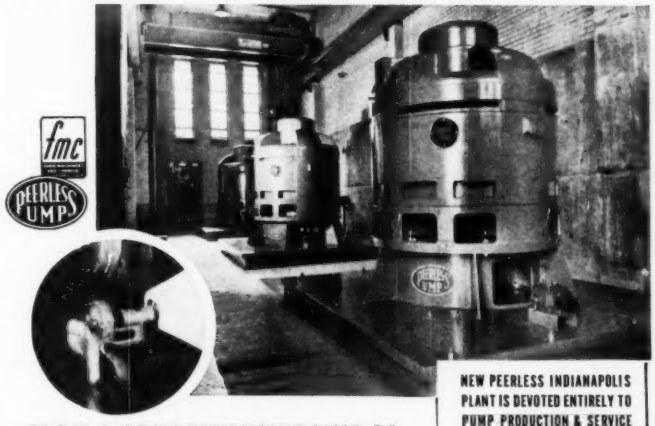
Mounted on its tractor, the Cyclone snow-blower measures 17 feet in length and 6 feet in width. It is manufactured by the Transport & Supplies Co., Ltd., Dorchester St., Quebec, Canada.

Designed for Weed Killers

The F. E. Myers & Bro. Co., Dept. N-194, Ashland, Ohio, is producing two types of hand sprayers for applying 2,4-D and similar weed killers. The Kwikfill compressed air sprayers (illustrated) have a Neoprene hose and special leather gaskets to enable the operator to use oil-base weed killers without damage to hose or leathers. The sprayer tank is made of strong galvanized iron or brass and comes in 2½- and 4-gallon sizes.

The company's new Knapsack sprayers have also been fitted with Neoprene hose, special gaskets, and Thermo Cup leathers to provide the same advantages as the other type. The Knapsack is equipped with an all-brass pump with a Jet Agitator. The cylinder is 1½-inch by 3-inch stroke, with brass ball valves and the 4-gallon tank is galvanized or brass.

WIDEST CAPACITY RANGE



FROM A COMPREHENSIVE LINE OF VERTICAL AND HORIZONTAL PUMPS

Peerless offers 2 to 220,000 gallons per minute

A tapful or a torrent! No matter what your water capacity requirements are, Peerless can meet your pumping needs.

Fractional hp horizontals, like the Peerless "Fluidyne" pumps handling cooling-jacket water in the inset above, furnish a few gallons a minute. The huge Peerless mixed-flow pumps in the larger photo, pump away drainage water at a rate of tens of thousands of gallons a minute.

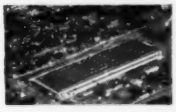
Widest capacity range is but one of a host of reasons why industries, municipalities and commercial businesses plan with Peerless for all their needs for pumps. Here are others:

ALL PRACTICAL HEADS: Lifting water from 1000 feet or more is a practical accomplishment of Peerless vertical deep well pumps. Pumping against heads of 690 feet is a common task for Peerless horizontal centrifugal pumps.

ALL TYPES OF DRIVE: Electric motor, right angle gear, engine, belt (V or flat) or combinations of the above, are all available from Peerless, with pump and driver engineered as a unit.

MODERN DESIGN: Peerless pumps are designed for top flight performance over extended periods of time. And the practical consideration of ease of maintenance is figured in to their functional, good looking design.

NEW PEERLESS INDIANAPOLIS PLANT IS DEVOTED ENTIRELY TO PUMP PRODUCTION & SERVICE



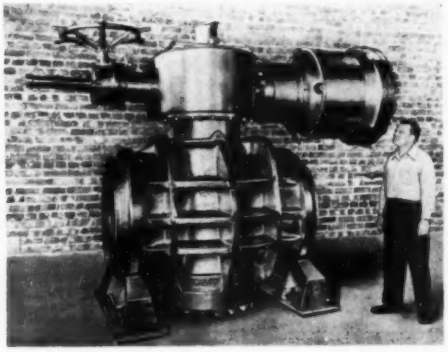
Here is one of America's newest pump plants—19 acres of modern manufacturing facilities devoted to precision production of horizontal and vertical pumps, located at Indianapolis. Plan with Peerless for pumps plus fast, comprehensive pump service.

NATIONWIDE SERVICE: Peerless sales and field service are available in all principal U. S. cities and abroad. Plan with Peerless for all your pumping needs. Individual bulletins on all types of Peerless Pumps are available upon request.

PEERLESS PUMP DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
Los Angeles 31, California — Indianapolis, Indiana
District Offices: New York 5, 37 Wall Street; Chicago 40, 4554 North Broadway; Atlanta Office: Rutland Bldg., Decatur, Ga.; Omaha, Nebraska, 4330 Leavenworth Street; Dallas 1, Texas, 3905 Elm Street; Fresno, California; Los Angeles 31, California

Peerless
VERTICAL AND HORIZONTAL
Pumps

Big Valve For 34" Line



The largest lubricated plug valve ever constructed has been completed by the Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa. Twelve of these giant valves, each weighing 15,900 pounds, are being manufactured for the initial section of the Pacific Gas & Electric Company's 34-inch gas pipe line from the Colorado River into the San Francisco bay area.

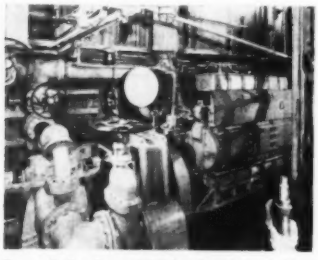
The cylinder is designed to operate the valve under unbalanced pressure equal to the maximum working pressure of the valve, with not more than 75 pound differential pressure across the cylinder.

Strang New G-E Manager

Harold E. Strang, engineering manager of the Affiliated Manufacturing Companies Department of the General Electric Co., Schenectady 5, N. Y., has been appointed manager of the G-E Apparatus Department's Meter and Instrument Division at Lynn, Mass.

Milwaukee Puts in Service Second Greatest Fire Boat

Milwaukee's new diesel-powered fire boat, *Deluge*, was put in regular service on July 17. The rated pumping capacity of 12,000 gpm is next to New



One of the four 375-hp Nordberg diesels in the engine room of the *Deluge*.

York City's *Fire Fighter* with its 22,000 gpm capacity.

The *Deluge* was designed by A. M. Deering, naval architect of Chicago, in collaboration with Milwaukee Fire Chief Edward E. Wischer. It is 96 feet 7 inches long with a water beam of 23 feet and a draft of 6 feet 9 inches. It is of all-welded steel construction and was built by Defoe, Inc., of Bay City, Mich.

The boat's power plant consists of four 4-cycle, 6-cylinder, 9 by 11½-inch supercharged diesel engines each rated at 375 hp at 600 rpm, manufactured by the Nordberg Mfg. Co., Milwaukee 7, Wis. Two of these engines, located aft in the engine room, are used for both propulsion and pumping. The two forward engines are used only for pumping. The diesels are air-starting, the air being supplied by two Gardner-Denver compressors.

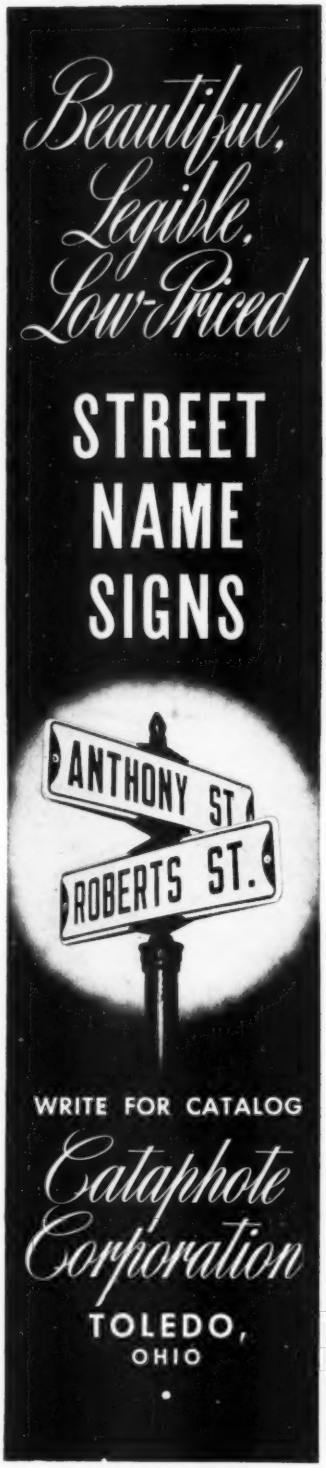
All four engines are connected through Falk speed increasers and Airflex clutches to four standard Allis-Chalmers single-stage, double-suction centrifugal pumps having rated capacities of 3,000 gpm at 150 psi and 1,600 rpm.

When working through the city's pipeline system, the mains will be fed by hose lines off the boat deck.

There are four Akron Brass monitors available for throwing water. Three are mounted on the main deck, two forward and one aft. One monitor is mounted aft on a telescoping tower that can be raised 21 feet from the water line in 45 seconds by a Rotary Lift Company hydraulic lift.

Two 12-inch Carlisle-Finch searchlights are mounted on brackets on either side of the pilot house and two similar searchlights are mounted on pedestals on the main deck aft. An Ideal Electric combination windlass and capstan is mounted on the centerline of the main deck forward. Power for general ship's service is available from two 30-kw, 220-volt U. S. Motors a.c. generating sets. There are two 300-gpm Nash bilge pumps and a 100-gpm Nash ship's fire pump. Aurora Pump Company furnished sanitary and freshwater pressure systems.

Among the many advantages Fire Chief Wischer finds in Milwaukee's new diesel-powered fire boat are lower fuel cost, quicker response to fire alarms, greater maneuverability, improved uniform pressure of diesel-engine-driven centrifugal pumps, elimination of the smoke nuisance, and less manpower required to man the *Deluge*.



Keep Your Parks and Beaches Tidy

Those in charge of parks, beaches, cemeteries, golf courses, etc., will welcome the invention of a modern time- and labor-saving device for collecting litter and keeping public lawns and bathing beaches free of paper scraps, cigarette and cigar butts, twigs and leaves. The patented Belmar Litter Picker has 12 sharp prongs for picking up and one of its novel features is a clearing device by which a twist of the handle pushes the material off the points.

Those interested in this ingenious machine for picking up litter can secure an illustrated folder and information as to the very reasonable prices for the litter picker and the sturdy canvas bag by writing to the Belmar Wheel and Machine Co., 1707 F St., Belmar, N. J.

The Model C Scoop is a unit with scoops in five sizes and other attachments, such as a ¾-cubic-yard concrete hopper, crane boom, lift forks.

With a load-lifting capacity of 4,000 pounds, the machine has hydraulic controls to fold down the top section of the hoist track yielding an overall height of only 8 feet, 2½ inches for work with low overhead clearance. With standard track extension, the track reaches a height of 26 feet.

Materials Handler Has Fluid Drive

The Mixermobile Mfrs., 6855 N. E. Halsey St., Portland 16, Ore., has adapted the Chrysler fluid drive to the Wagnermobile Model C Scoop, claiming the first unit in the materials handling field to have fluid drive.

BREAK AND CUT COSTS THE EASY WAY

BREAK WITH POWER, SPEED, ECONOMY

The MIGHTY MIDGET reduces the cost of breaking asphalt and concrete to a minimum cost that is unequalled by other methods. Tamps backfill at an unbelievable pace; gives high density. All controls within operator's reach. Operates on 105 C.F.M. compressors.

Write for information to Department "D"

R.P.B. CORPORATION
2751 EAST 11th STREET · LOS ANGELES, CALIFORNIA

PLAY SAFE!

PLAN MORE NIGHTTIME PLAY SPOTS *NOW!*

Keep the youngsters off streets and out of alleys by providing well-lighted nighttime recreational areas. For qualified, no-obligation service, write us.

Revere ELECTRIC MFG. CO. CHICAGO, ILL.

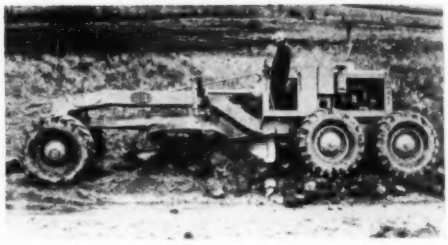
Super FLOODLIGHTS for PARKS, PLAYGROUNDS, Etc.

The REVERE organization is well qualified to work with municipalities planning nighttime play activities. We manufacture floodlights from 150 to 5,000 watts to suit every sports lighting need. Flood shown here is our "2000" line—18"and 20" Rear Service Flood. An excellent unit for broad light distribution. Weatherpoof. Easy to wire, install and maintain. Write for our Catalog "Floodlighting for Nighttime Sports"—it's a big help in planning!

REVERE ELECTRIC MFG. CO.

6015 BROADWAY **CHICAGO 40, ILL.**

New Huber Grader



The wheels remain perpendicular to the ground even when running over sizeable obstacles.

The Huber Mfg. Co., Marion, Ohio, has added to its line a heavy-duty motor grader that exerts, without scarifier, a blade pressure of 12,440 pounds.

With hydro-mechanical controls, the machine has a front-axle clearance of 27½ inches, an 87-inch shoulder reach, and it can roll over obstacles up to 14 inches high or into a ditch 14 inches deep without changing the leaning angle: no sideslipping and no rolling on the side of the tire.

The grader has eight speeds forward ranging from 1.31 to 20.63 mph, and two speeds reverse. Circle, lifting arms, and sideshifting are operated through the Hydro-mechanical system and the lifting arms can be held in any desired position simply by stopping the motor.

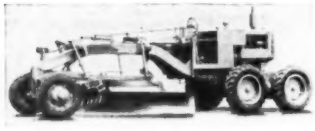
Offered as optional equipment are enclosed safety-glass cab and a V-type, 9-tooth scarifier with 46-inch swath and 2-foot blade extension right or left.

McKee Appointment

The California Institute of Technology has appointed Dr. J. E. McKee of the consulting engineering firm of Camp, Dresser & McKee, Boston, Mass., as Associate Professor of Sanitary Engineering. Prior to his consulting work, he was employed by the Tennessee Valley Authority and U. S. Public Health Service.

Inasmuch as teaching duties and research will occupy most of his time, Dr. McKee will withdraw as an active partner of Camp, Dresser & McKee, but he will retain an affiliation with the consulting firm. He will continue to assist the firm on problems of stream-pollution investigation and industrial waste research.

Galion Adds New Motor Grader to Their Line



The new Galion No. 303 Motor Grader will be of special interest in those cases where budgets for road and street building and maintenance equipment are limited, since it can be supplied with either a gasoline or diesel engine—both 45 hp at 1,600 rpm. Another budget-fitting feature is offered in a choice between an all-gear four-wheel tandem drive or single drive. Eight overlapping forward and two reverse speeds are said to assure maximum performance under all operating conditions. It can be obtained with either manual or hydraulic booster steering, and weights, without scarifier, are from 13,145 pounds (tanden drive) or 11,400 pounds (single drive) and up, depending on extra equipment.

All operations of the blade, scarifier, and leaning front wheels are completely hydraulic. Adjustments are instantly made by finger-tip touch on the control levers. Blade is adjustable 360° horizontally for operation in reverse, and 90° vertically for bank cutting. Standard equipment includes an electric starter. For complete information, write The Galion Iron Works & Mfg. Co., Galion, Ohio, or any of their distributors.

ONE-HAND
Quality
LINE LOCATOR

A soundly designed sturdily built precision locator

The *Quality* locator that has set new high standards for performance

WILKINSON LINE LOCATORS

used by leading utilities and municipalities. It is light but powerful—a simple one-man tool that does EVERY job.

Regardless of depth, no part of your underground pipe system can escape this electronic sleuth.

LIGHT • HANDY • POWERFUL

WILKINSON LINE LOCATOR'S skill in detection is unhampered by powerful broadcasting stations or high tension lines. WILKINSON does the sorts of jobs that stymie ordinary devices.

Equip with a PROVEN *Quality* Professional Instrument

WILKINSON LINE LOCATOR

LIGHT • COMPACT • POWERFUL

Write for complete literature and prices

Originators of light, weight, all-purpose quality Locators.

WILKINSON PRODUCTS CO.

P. O. Box 1774, Wilshire-La Brea Station, Los Angeles 36, Calif.

Clean Sidewalks All the Time

In winter, motorists driving the toll house on the new Raymond E. Baldwin Bridge over the Connecticut River are able to make a safe stop for paying the fare. Under each dry patch are wrought-iron heating coils filled with hot water supplied by a Mills oil-fired boiler. The photograph was supplied by A. M. Byers Co., Pittsburgh, Pa.

Cantrell Dies

Edwin L. Cantrell, the well known and highly regarded Louisville district manager of the Neptune Meter Co., of Louisville, Ky., died recently of a heart attack. Mr. Cantrell had been associated with Neptune for the past thirty-six years.

J. J. Carroll

John J. Carroll, who since 1939 has represented the company in Indiana, has been appointed to succeed Mr. Cantrell. Mr. Carroll joined Neptune twelve years ago.

Parking Space— A Part of Housing

The 10 garages built by the Metropolitan Life Insurance Co. to service its large housing developments, Parklabrea in Los Angeles and Parkmerced in San Francisco, will be operated by American Garages, Inc., a subsidiary of Ramp Buildings Corp., 230 Park Ave., New York City.

In Los Angeles, Parklabrea now contains a population of 1,316 families in two-story apartment buildings of colonial type. When the 13-story buildings are completed next year the community will have about 4,300 families.

The San Francisco development is now occupied by 1,687 families in two-story buildings similar to those of Parklabrea. Here also Metropolitan is adding 13-story buildings with 3,500 apartments.

In New York City, Ramp Buildings has for 10 years operated the garages in Metropolitan's Parkchester development and recently assumed a similar responsibility for the six facilities in Stuyvesant Town, also built by Metropolitan. Fred W. Moe, president of Ramp Buildings, says that specially engineered parking units in connection with housing developments are now an established trend.

Chief Civil Engineer *Wanted*

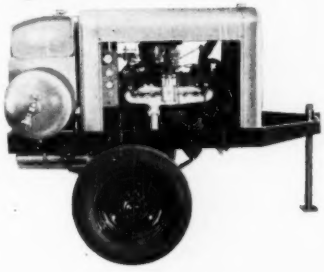
Established West Coast Engineering firm needs qualified Graduate Civil Engineer to take charge of Civil Department.

Thorough knowledge and wide experience required in Civil Engineering including grading, drainage, roads, railroads, and utility layouts for municipalities. In addition, applicant must possess ability to discuss and develop prospective work with municipal, county and state authorities.

Furnish complete record with photo. Replies confidential.

Box Number L. A. 323, c/o The American City, 470 4th Ave., New York 16, N. Y.

Here's the **COMPRESSOR** *for you!*



. . A new Smith Compressor with more capacity, smooth operation, economy . . long life!

Powered with a famous CHRYSLER Industrial Engine—3 cylinders for power—3 for compression. Evenly spaced power impulses. Capacity 70 cu. ft. at 80 lbs. pressure. Throttle operates about 1/3 open when operating at 150 lbs. pressure. Built for heavy duty without excess bulk and weight. Engine parts available at Chrysler, DeSoto, Dodge truck dealers.

Write for complete facts about the SMITH Model 250!

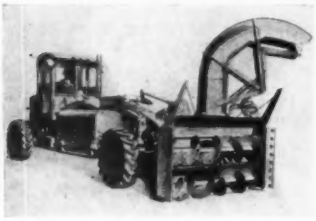
SMITH AIR COMPRESSORS

GORDON SMITH & CO.

425 College St. Bowling Green, Ky.

Austin-Western Distributes Sicard Snow Master Plow

The Austin-Western Co., Aurora, Ill., has been appointed as sole distributor of the Snow Master rotary plow, when

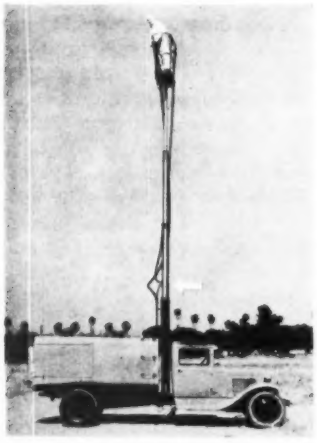


used as a grader attachment, in both the United States and Canada by the Sicard Industries, Inc., 2055 Bennett Ave., Montreal, P. Q., Canada.

A revolving telescopic chute on the Snow Master casts snow in a full 220° arc for any distance from 3 feet to more than 150 feet. Trucks can be loaded from either side of the machine or from the front, and blower housing and wrist action chute enable the operator to cast to the spot desired to clear driveways, intersections, power wires, or other obstructions.

The four-wheel-drive Austin-Western power graders make it possible for the Snow Master to be used in places that would be inaccessible without the extra traction and maneuverability.

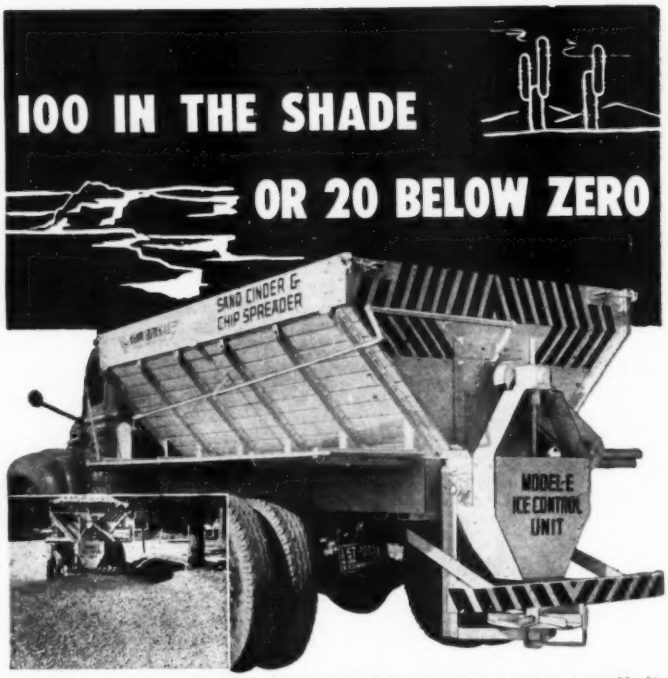
Portable Extending Tower Reaches to 60-Foot Height



When not in use the tower collapses to a height indicated by the arrow.

The portable extending tower manufactured by General Machine & Welding Works, 1100 East 2nd St., Pomona, Calif., is available wherever portable scaffolding is required from heights of 20 to 60 feet.

The towers are constructed of steel tubing in 5-, 6-, 7-, 8-, or 9-foot lengths and the all-steel catwalk measures 12 feet long by 18 inches wide.



THERE'S A JOB FOR THE ALL-PURPOSE HIGHWAY MODEL "E"

● Spreading sand and cinders for ice control on streets, highways airport runways, etc. ● Spreading calcium chloride for dust control on secondary roads, parking lots, airports, fair grounds, etc. ● For seal coat work, spreading chips, sand, etc., over newly laid oil or blacktop ● Patch work spreading ● Spreading commercial fertilizers in parks, on lawns ● Hauling crushed rock and chips ● General road and shoulder maintenance

CHECK THESE 14 FEATURES SAVE TIME, MATERIAL, MONEY

1. Uniform spread at all speeds.
2. Covers 2 or 4-lane highway in one operation.
3. Spreads material on highway where needed. No material wasted on shoulders.
4. Operates forward or reverse.
5. Spreads to right, to left, or both sides as desired.
6. Material is cast low to ground—no interference with traffic.
7. Spread may be started or stopped with truck in motion.
8. All controls within easy reach of driver's seat—one-man operation.
9. Material is also spread ahead of rear wheels of truck assuring traction and safety at all operating speeds.
10. Electrically-welded, all-steel frame.
11. Wooden hopper eliminates corrosion from chlorides, assures longer life; also wet material won't freeze to sides in cold weather as is often the case with a steel hopper.
12. Ball-bearing gear boxes, oil-tight, dust and water-proof.
13. Self-unloading, 24"-wide conveyor assures steady material flow.
14. Hopper sides hinged for easier hand loading. Lengths to fit any truck chassis.

MODEL "DD" Motor-Driven Spreader

Clamps onto tailgate of any dump truck. Handles sand and cinders for ice control, calcium chloride for dust control, equally adapted for seal coat work. Does the work of 5 men casting by hand. 1½-h.p. Briggs and Stratton power.

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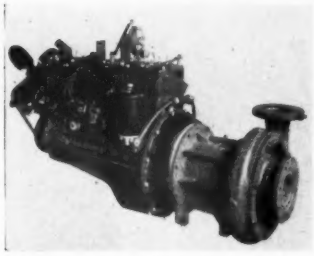
End-Suction Pump For Street Flushers



The new single-stage end-suction pump developed by the Weinman Pump Mfg. Co., 308 Spruce St., Columbus, Ohio, is a high-head, centrifugal-type pump that can be close-coupled to a gasoline engine by means of a splined shaft and driving disc. It is especially suited for use on street flushers and for irrigation systems.

Available in 2½-, 3-, and 4-inch sizes for capacities up to 1,000 gpm and heads up to 230 feet, 100 pounds pressure per square inch, the pump may be mounted directly on the engine without special sub-bases, flexible couplings, or any mechanical adjustment for alignment.

New Littleford Pressure Distributor

Littleford Bros., Inc., 500 E. Pearl St., Cincinnati 2, Ohio, has introduced its Spray King pressure distributor in sizes from 800 to 2,000 gallons, that comes with a choice of end folding spray bars, both full circulating and standard suck back, low pressure atomizing or vaporizing torch-type burners, single valve control, heat chamber for pump and valves, flue liners in main flues, two 8-inch U-type heat flues, 28-hp engine with clutch and four speed transmissions, mechanical lift for adjusting spray bar for height, catwalks, filler connection in the rear of the machine, a hand spray attachment, 375-gallon-per-minute pump at 375 rpm, and inside closing valve.

In sizes from 800 to 2,000 gallons, the Spray King has two basic models: the HV with vaporizing torch type burners, and the HI with low pressure atomizing burners. Both models can be either truck mounted or semi-trailer mounted.

South Bend

GUTTER-SNIPE

Model "E" Pick-Up Street Sweeper

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Holds 1¼ yards dirt
Turns in 19-ft. circle
Can sweep up a 10% grade
Has three sweeping speeds

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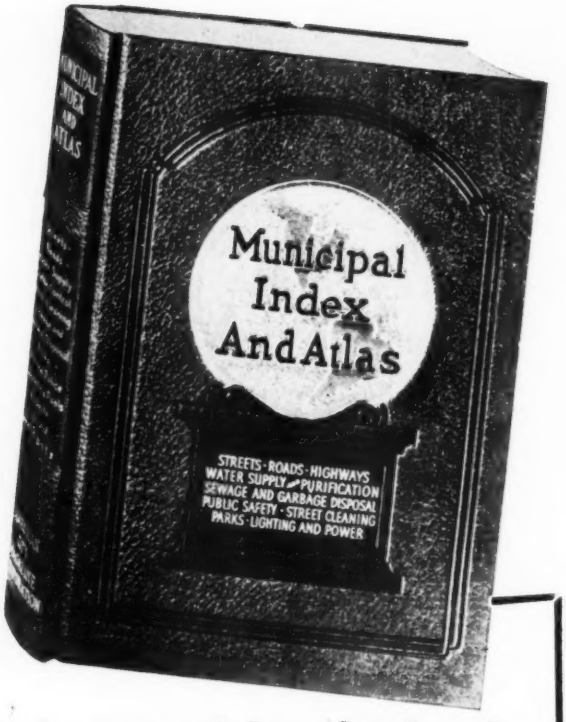
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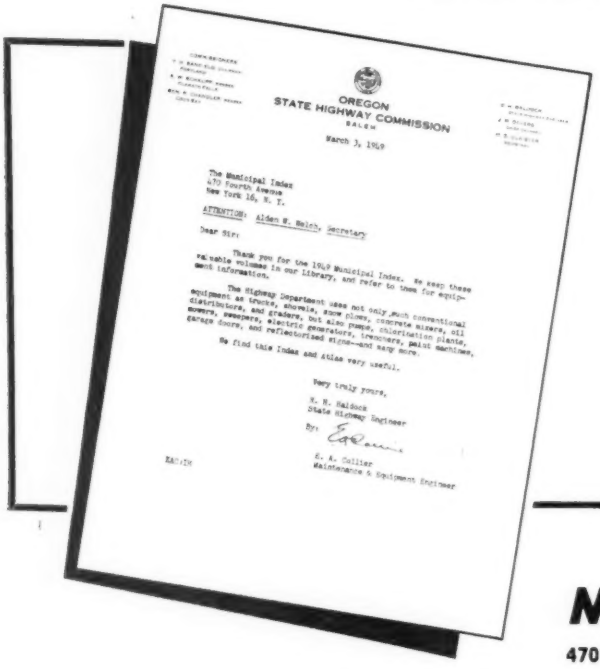
Here is one of hundreds of enthusiastic letters which we have received since the distribution of the 1949 edition.



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STATE HIGHWAY COMMISSION
SALEM

March 3, 1949

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ATTENTION: Alden H. Welch, Secretary

Dear Sir:

Thank you for the 1949 Municipal Index. We keep these valuable volumes in our library, and refer to them for equipment information.

The Highway Department uses not only such conventional equipment as trucks, shovels, snow plows, concrete mixers, oil distributors, and graders, but also pumps, chlorination plants, mowers, sweepers, electric generators, trenchers, paint machines, garage doors, and reflectorized signs—and many more.

We find this Index and Atlas very useful.

Very truly yours,
R. H. Baldock
State Highway Engineer
By: E. A. Collier
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COLORADO STATE HIGHWAY PATROL

STANDARDIZES ON

PHILCO

FM Communications Equipment

FOR STATEWIDE COVERAGE

Photos Courtesy Colorado State Highway Patrol

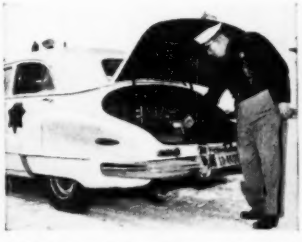
Chief Gilbert R. Carrel talks to patrol cars from Denver headquarters. Transmitter on 11,500 ft. Squaw Mountain (above), highest police installation in U. S., assures dependable coverage of over 30,000 sq. miles.

Colorado's fast-moving, efficient Highway Patrol faces unique communications problems in a state with more than 1000 mountain peaks over 10,000 feet high. Communications between headquarters and patrol cars must contend with rugged terrain as well as with extremes of weather and temperature.

Engineers of the Highway Patrol and Philco solved the problem with 2-frequency operation . . . providing statewide coverage through a series of central stations and automatic repeater units. 110 mobile units and 8 land stations are already in operation, with over 30 more land stations to be installed soon.

Yes, Philco FM equipment meets exacting requirements. For full information, write to PHILCO, Industrial Division, Dept. DA-9, Phila. 34, Penna.

Captain Frank A. Swanlund, Chief Engineer, tests Central Station transmitter—receiver on Squaw Mt.



Chief Carrel inspects mobile two frequency transmitter-receiver. Drawer type design cuts service time.

tomorrow's newspaper today

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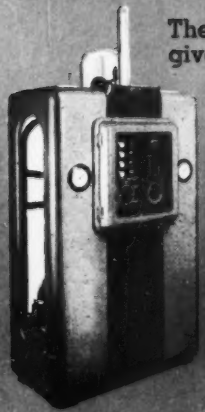

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